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NEW YEAR'S RESOLUTIONS.

WITH the beginning of a new year, we naturally expect the "turning over of a new leaf" to be a part of the proceedings. Perhaps that is why some folks remain up late the night before, that no time may be lost before the leaf must be turned.

At any rate, some of those in the trade who have been disappointed in the results of their year's work will now have time to cast up the accounts, and decide whether their work and worry was really worth the effort.

That too much business has been done without adequate profit is admitted by master plumber and fitter, jobber and manufacturer alike. And the remedy seems to be simply a better knowledge of what it costs to do business today.

Yet, even if the cost is known, there must be an effort made to create **new** business—to expand the influence of the trade—to direct the public toward the expenditure of more money for plumbing and heating, rather than for automobiles and pleasure trips.

All this agitation will bear no fruit unless the organizations and individuals in the trade make up their collective and individual minds to boost for more business where business is to be had.

This means simply an educational campaign for better methods in plumbing and heating, and more of this work in town and country.

It does not mean that you are to sit in your office for the next three months, and wait for something to turn up.

It means that you are to get into touch with every property owner in your county or beyond, as far as you can work, and let them all know what you can do for them—in plumbing, heating, lighting, water systems, etc.

Your work should begin at once. There are a hundred manufacturers, big and little, ready to cooperate with you. Look over the New Year's Number of "Domestic Engineering"—there you will find the advertisements of manufacturers who will help you in your plan.

The booklets and circulars that you can obtain from your favorite manufacturers can be mailed to your list of possible patrons, beginning at once, and continuing at regular intervals during the winter and spring months. Each piece of advertising should carry your imprint, and should preferably be mailed in an envelope with a form letter.

Some plumbers and fitters claim that they have paid the expenses of such a campaign with repair or jobbing work from new customers secured in this way. Their big results, of course, come later in the season, when the larger contracts have been secured.

One plumbing and heating firm at Fargo, North Dakota, is making use of the article by Elbert Hubbard, which was published in the New Year's Number a year ago. They have had it printed in circular form, and are distributing 2,500 copies in their territory.

The poem by Walt Mason in last week's New Year's Number could be used in the same way—it would put the value of the master plumber before the community in the true light.

Next week, under the head of "Publicity for Plumbers," we will publish some sample form letters that can be used for this purpose.

In the meantime, get busy on your mailing list—make every day count.

Sizes of Pipe for Gravity Hot Water Systems*

A Chart for Determining the Proper Sizes, With Formulae for Figuring Under Various Conditions, and Reasons for the Same

By M. S. COOLEY

THE calculations involved in accurately determining the proper sizes of piping to be used in a gravity hot-water heating system have formed the subject of at least two papers read before this Society, both of which have given rather complicated formulae with which to determine the commercial size of piping, the use of which requires a greater expenditure of time than the average engineer can well afford to spend on such a small item in the design of a large or small heating layout. Although several charts for determining the sizes of hot-air and vent piping, and ducts, as well as the sizes of steam piping for both high and low pressure work, in which all the variables involved are easily traced and the results accurately determined by simple operations have been published, the author has not found any similar chart by which the many variables involved in the calculation of a system of piping for hot-water heating can be easily traced and the proper pipe size determined by simple methods. Such a chart was constructed by the author some five or six years ago and has been used by him in the calculation of some rather complicated systems of piping with good results. The method by which it was devised and the manner in which it is used form the subject of this paper.

Variables Involved.

In the calculation of hot-water piping four variables are involved, viz.: temperature drop, or the difference between the temperature of the flow and return water at the radiator when the size of connections to radiators is being determined, and in the flow and return mains when the size of these mains is being determined; working head, or the vertical length of the warmer and colder columns which produce the flow of water in the pipe; length of pipe, which is a factor in the friction which the force due to the difference in the weight of the warm and cold columns must overcome, and size of pipe, which also affects the friction.

Temperature Drop: This variable affects, first, the quantity of water which must pass through the radiator in order that a given number of heat units may be available in a given time. The greater the temperature drop the smaller the quantity of water that must be passed through the radiator in a given time to liberate the same number of heat units. Second, the difference in weight of the vertical columns producing the flow. The greater the temperature difference the more power is available with a fixed height of vertical columns to produce the flow. Third, the velocity necessary to deliver the required weight of water. The greater the difference the lower is the velocity necessary in a given sized pipe to deliver the required heat units and therefore the lower the friction.

Working Head: This variable affects only the force available to produce the flow. The greater the head the greater is the difference in weight of the vertical columns with the same temperature difference:

Length and Diameter of Pipe: These variables affect the

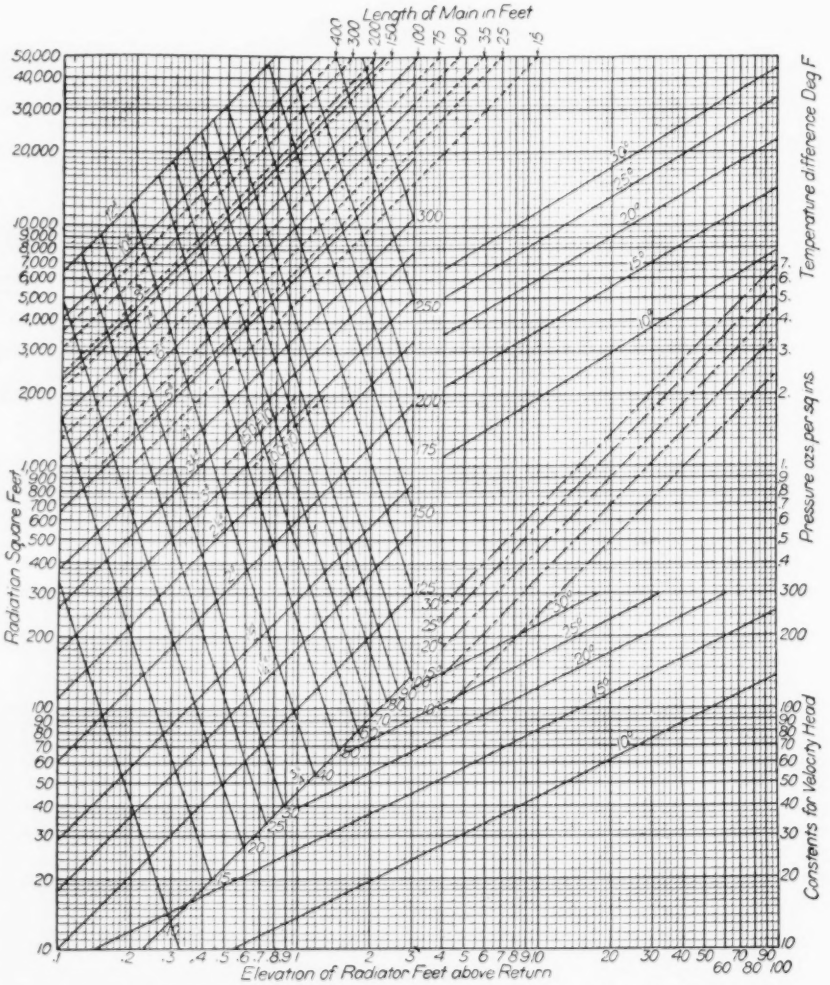

Length of Main in Feet
Radiation Square Feet
Temperature difference Deg F
Pressure ozs per sq ins.
Constants for Velocity Head
Elevation of Radiator Feet above Return

CHART FOR DETERMINING SIZE OF PIPE FOR GRAVITY HOT-WATER HEATING SYSTEMS.

*Paper presented before the American Society of Heating and Ventilating Engineers at the Summer Meeting, Buffalo, N. Y.

friction which must be overcome by the difference in weight of the vertical columns.

Symbols Used: In the following calculations the symbols used are:

t=temperature difference between flow and return in degrees Fahrenheit.

e=working head in feet.

l=equivalent length of pipe in feet.

d=diameter of pipe in inches.

f=friction in pounds per square inch.

f'=friction head in feet of water.

v=velocity in pipe in feet per second.

R=radiation in square feet.

Friction: Weisback's formula for loss of head caused by friction of water in pipes is given in Kent's pocket-book as

$$f' = (0.0144 + \frac{0.0176}{\sqrt{v}}) = \frac{l\,v^2}{5.367\,d}$$

$$f = \frac{62.55}{144} f' = .43\,f'$$

For values of v usually encountered in gravity heating systems (i. e., 0.1 to 1.5 ft. per second) the following formula gives almost identical results:

$$f = \frac{0.0025 v^{1.7}\, l}{d} \qquad (1)$$

Available Head: The pressure available to overcome this friction loss is the difference in weight of the vertical columns of water in the flow and return piping.

The difference in weight of a cubic foot of water at the temperatures usually encountered in hot-water heating systems (i. e., 160 deg. to 180 deg. F.) is approximately 0.022 lb. per cubic foot for each degree difference in temperature. Therefore the head available will be

$$f = \frac{0.022\,t\,e}{144} = 0.00015\,t\,e \qquad (2)$$

Equating (1) and (2)

$$0.00015\,t\,e = \frac{0.0025 v^{1.7}\, l}{d} \text{ or } v^{1.7} = 0.06 \left(\frac{t\,e\,d}{l}\right) \text{and}$$

$$v = 0.191 \left(\frac{t\,e\,d}{1}\right)^{0.6} \qquad (3)$$

Assuming that each square foot of direct hot-water radiation emits 180 B. t. u. per hour, then

$$\text{Pounds of water per hour required} = \frac{180\,\text{R}}{t} \text{ or } \text{R} = \frac{\text{lb. water} \times t}{180}$$

The cubic feet of water passing through a pipe d in. in diameter in one hour at a velocity of v ft. per second is

$$\text{Cubic feet per hour} = \frac{3600\,v\,d^2\,0.7854}{144} = 19.635\,v\,d^2$$

and the pounds of water per hour passing through this pipe will be

$$60.55 \times 19.635\,v\,d^2 = 1188.9\,v\,d^2$$

Therefore $$\text{R} = 6.6\,v\,t\,d^2$$

Substituting the value of v found in equation (3) we have

$$\text{R} = 1.261\,\frac{t^{1.6} e^{0.6} d^{2.6}}{l^{0.6}}$$

Here we have an equation for the radiation which can be served by a pipe of a given diameter involving the four variables hereinbefore stated.

In forming the chart a logarithmic scale was employed and each variable eleminated from the equation and represented by a line on the chart, and by using successive lines inclined at an angle of 45 deg. multiplications eliminating one variable at a time were made until the final result was obtained graphically. The first variable eliminated was t, and in performing this elimination closer results were obtained by taking into account the variation in the specific heat of water at different temperatures and the variation in the rate of heat transfer with variation in the average temperature of water in the radiator. The calculations for a 20 deg. drop are given as an example of the method used.

Temperature of water entering radiator is assumed as 180 deg. F., and the rate of transfer of heat from the radiator to the room as 1.8 B. t. u. per degree difference in temperature between the water in the radiator and the surrounding air.

Temperature of entering water 180 deg. F., of leaving water 160 deg. F. Average temperature 170 deg. F.

B. t. u. per square foot (170—70) 1.8=180 B. t. u. per hour.

B. t. u. in 1 lb. of water at 180 deg. F.=148.54

B. t. u. in 1 lb. of water at 160 deg. F.=128.37

B. t. u. available from 1 lb. of water = 20.17

180÷20.17=8.924 lb. of water required per square foot of radiation per hour equals 0.1474 cu. ft.

$$\text{Area of pipe in square feet} = \frac{d^2 \times 0.7854}{144}$$

$$\text{Velocity in pipe to serve 1 sq. ft. of radiation} = \text{cubic feet} \div \text{area or } v = \frac{0.1474 \times 144}{3600 \times 0.7854 d^2} = \frac{0.0075}{d^2}$$

Weight of 1 cu. ft. of water at 160 deg. = 60.98 lb.

Weight of 1 cu. ft. of water at 180 deg. = 60.55 lb.

Difference 0.43 lb.

$$\text{Available working head to overcome friction} = \frac{0.43\,e}{144} =$$

0.003 e lb. per square inch, which equals the friction or $\frac{0.0025 v^{1.7} l}{d} = 0.003\,e$

$$v^{1.7} = \frac{0.003\,ed}{0.0025 l} = 1.20\,\frac{de}{l} \text{ and } v = 1.11 \left(\frac{de}{l}\right)^{0.6}$$

Equating the values of v we have:

$$1.11 \left(\frac{de}{l}\right)^{0.6} = \frac{0.0075\,\text{R}}{d^2} \qquad \text{R} = 148.5\,\frac{e^{0.6} d^{2.6}}{l^{0.6}}$$

Solving this equation for various values of e the inclined line near the upper hight-hand side of the chart marked 20 deg. was determined, and in a like manner the lines marked 10 deg., 15 deg., 25 deg., and 30 deg., were determined. Next the dotted lines inclined at an angle of 45 deg. at the upper left side of the chart were placed in position in proportion to the 0.6 power of the various lengths acting as a multiplier, the horizontal passing through any intersection of a diagonal at the upper right-hand side and a vertical e intersects these latter diagonals on the horizontal eliminating l. Next the solid diagonals at the left-hand side of the chart were placed in position in proportion to the 2.6 power of the actual pipe diameters, and using these again as a multiplier the radiation is read on the left-hand margin.

The foregoing formula gives the elevation e necessary to overcome the friction loss in the pipe. There will be required in addition to this a further elevation sufficient to produce the velocity in the pipe, i.e., to overcome the velocity head, which is represented by the formula $v=\sqrt{2gh}$, h being in feet or the height of a column of water giving the difference of pressure necessary to produce the flow.

As the velocity in any pipe when serving a given amount of radiation is dependent on the drop of temperature within the radiator, this elevation will also be a function of the

temperature difference and must be computed for each temperature difference. The calculation for 20 deg. drop is as follows:

Difference in weight of flow and return 0.43 lb. per cubic foot, which gives a pressure of 0.003 lb. per square inch for each foot of elevation, e. The head necessary to produce a pressure of 1 lb. per square inch at a temperature of 180 deg. is 2.375 ft., and the pressure produced by an elevation of 1 ft. with 20 deg. drop is 0.0065 lb. per square inch. Therefore the pressure produced by any elevation, e, is $0.0065\ e = h$. Substituting in the formula $v = \sqrt{2gh}$ we have $v = \sqrt{64.4 \times 0.0065\ e}$, or $e = \frac{v^2}{0.418}$ for 20 deg. drop.

The head is determined in the table by noting the diagonal crossing the intersection of the pipe size and radiation lines and transferring the number on this diagonal to the right-hand margin and following the horizontal opposite said number to its intersection with the diagonal near the bottom of the table representing the temperature drop, and thence vertically from this intersection to the lower margin, where the elevation necessary to produce the velocity head is read.

The diagonal lines near the center of the right-hand side of the table are for reducing the pressure produced by the difference in weight of water in the vertical columns of the flow and return sides of the system to ounces per square inch, and were placed on the chart in order to check its results with a table which was being calculated by Mr. Geo. E. Reid, of the Supervising Architect's office of the Treasury Department, in which all friction losses were expressed in ounces per square inch. They are of no particular value in calculations for gravity work, and give too low pressures to be of any value in connection with forced circulation work. The pressure is determined by following the vertical line representing any head to its intersection with the diagonal line near the right center of the table representing the temperature difference and then passing from this intersection horizontally to the right margin where the pressure can be read.

Instructions for Use of Friction Diagram in Calculating Sizes of Hot-Water Heating Pipes.

One-Pipe System Main in Basement. Radiator tappings, branches and risers: First ascertain the distance from the bottom of the flow main to the top of the radiator. Find this number at the base of the table and follow vertically to the intersection of the line inclined toward the left near the top of the table corresponding to the difference of temperature desired between flow and return connections to the radiator. Now follow the horizontal line passing nearest to this intersection toward the left until it intersects the dotted line inclined toward the left, and corresponding to length of connections from main to radiator and back plus:

For each long turn elbow or gate valve 5 ft.
For each short turn elbow or angle valve 10 ft.
For each globe valve ..... 20 ft.

Now follow the vertical line, passing nearest to this intersection to its intersection with the horizontal line opposite the figure in the left-hand margin corresponding to the amount of radiation to be supplied, and the solid diagonal line inclined toward the left that passes above this intersection is the size of pipe required.

Example: Elevation 6 ft.; temperature difference 15 deg.; equivalent length 50 ft.; radiation 100 sq. ft. What size pipe required?

Follow line from "6" at base of table to intersection with diagonal 15 deg. They intersect on horizontal line "2800"; then follow line "2800" to intersection with dotted diagonal "50." They intersect on vertical line "26." Follow this to intersection with horizontal line "100." The solid diagonal inclined toward the left above this intersection is "2 in."; therefore a 2-in. pipe will be required.

We have still to determine the head necessary to produce this velocity. To obtain this find the diagonal line inclined toward the right passing nearest to the intersection of diagonal "2" and horizontal "100." This is "10" or "constant for velocity head." Follow horizontally from the figure in the right margin near the bottom corresponding to this constant to its intersection with the lower diagonal 15 deg., and the head to produce this velocity is found in the lower margin and in this case is 0.14 ft. This must be added to the friction head. In nearly all gravity work this velocity head is so small it may be neglected.

If we wish to know the pressure in ounces per square inch equivalent to this head and temperature difference, follow the horizontal "6" to its intersection with the broken diagonal 15 deg., near the center of the table. Then follow the horizontal line to the right margin, where the pressure in ounces per square inch is found to be 0.2.

To ascertain size of main, use the distance of the flow main at its lowest point to the bottom of the boiler as elevation, and the length of the main from the boiler back to same plus allowance for elbows, valves, etc., as equivalent length. Use a drop greater than that assumed through radiator, and proceed as explained for radiator.

For Two Pipe, Reversed Circulation System. With flow main, in basement, measure total water travel from the boiler to the first story radiator and back to the boiler, plus allowance for fittings as equivalent length. Use the distance from the bottom of the boiler to the top of the first floor radiator as elevation. Ascertain sizes for the first floor. In a like mannem ascertain sizes for the second floor, third floor, etc. Now combine these sizes into a single pipe having equal carrying capacity, in the following manner:

Note the figure on the left-hand margin, corresponding with the intersection of the diagonal for each pipe size. Take the sum and note the pipe diagonal, intersecting margin at said sum as size desired.

Example:

2=1 in.; 3=1¼ in.; 1=1½ in. Find pipe of equivalent carrying capacity.

Pipe in.	*Intersection*		*Number*		
1	10	x	2	=	20
1¼	18	x	3	=	54
1½	29	x	1	=	29
					103
2½	110	x	1	=	size required.

This neglects velocity head and is permissible for gravity work only. If the system is not laid out to give equal water travel to each radiator then ascertain the pipe size for each equivalent length and find the pipe of equivalent carrying capacity to the sum of pipes it serves.

Often we have two pipes to equalize, neither of which is fully loaded, and if we equalize as in the foregoing we get too large a pipe. In such cases, and it is better in all cases, to run imaginary lines from the intersection by which pipe size was determined, parallel to the pipe size diagonals to the margin and add the quantities so found to determine the equivalent pipe size.

Example:

Elevation 6 ft.	Elevation 20 ft.
Temp. difference 15 deg.	Temp. difference 15 deg.
Length 50 ft.	Length 75 ft.
Radiation 100 sq. ft.	Radiation 100 sq. ft.
2-in. pipe required.	1½-in. pipe required.

If we combine a 1½-in. and a 2-in. pipe we get 29+62=91=2½-in. pipe.

If we project imaginary diagonals we get 23+39=62, or a 2-in. pipe is sufficient.

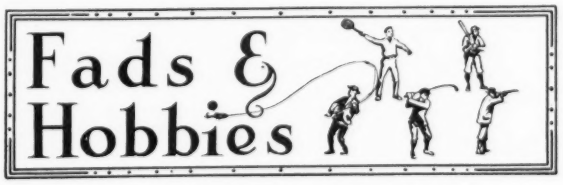
By noting the intersection of the imaginary diagonal with the margin at each determination, as well as the pipe size, the combining can be quickly and correctly accomplished by addition of these notations.

Overhead System Single Pipe Drops: Use one-half the vertical distance from the flow main to the bottom of the boiler as the head. Make drops the same size for the entire length and large enough to supply the total radiation on such drop. Use temperature difference for system divided by number of stories heated as temperature difference for each radiator in determining size of radiator connections. Use total water travel from the boiler back to same plus allowance for elbows, valves, etc., as equivalent length. If all drops do not have the same water travel determine the size of the main to supply each drop separately and combine, as hereinbefore directed, to determine the size of the main.

Overhead System, with Double Pipe Drops, and Drop Insulated:

Use the distance from the top of the radiator to the bottom of the boiler as the elevation for that radiator, and the total distance from the boiler to the radiator back to the boiler, plus allowance for elbows, etc., as the equivalent length. Ascertain size of pipe for each story separately and combine into pipe of equivalent capacity. If all drops do not have the same water travel determine the size of the main to supply each drop separately and combine to determine the size for the main.

In event the drops or risers in any system are exposed in the rooms there will be a certain amount of cooling in the risers, which is hard to determine. This will tend to aid circulation in an overhead system and retard circulation in a system with flow mains in the basement.



Sons and Daughters.

According to that eminent, elegant and eloquent "has been," who rejoices in the name of Theodore Roosevelt, ex-president of these United States, a man should be known not particularly by the company he keeps, but by the youngsters he keeps around the domestic fireside. Teddy argues that a good citizen's biggest hobby should be, namely—the raising and rearing of a generous number of little troubles. To be a really A1 American a man should have a large and frolic-some brood around his household board. According to Teddy every American should fight the arch-enemy Race Suicide with might and main. "Fighting Race Suicide," says the hero of San Juan Hill, "should be your greatest hobby in life."

Well, we know one estimable gentleman whom the colonel would pat on the back and exclaim—"Deelighted." We have in mind a progressive Illinois master plumber down in the city of Decatur. He signs his name—Edward Adams, but friends call him Ed. Adams.

Mr. and Mrs. Adams, be it said, have a prize-winning family. They're all high-grade peaches. And to have those blushing peaches crowd around his arm chair of an evening is Ed's greatest hobby. He's got six of 'em. In other words he has six little hobbies, five feminine ones and one masculine. Some of them are regular little grafters. They'll touch Ed for a nickel or a dime without batting an eye. And Ed don't seem to mind it much either, for he generally comes across with the dough when one of the peaches tackles him with a charming and persuasive —"Awe, please, papa, give me a nickel. I want to get some chewing gum."

The accompanying photo shows two of Mr. Adams' peaches, Miss Bertha and Miss Gertrude Adams. The little male "trouble" in the picture is the oldest son of

Editor Marquam of "Domestic Engineering." The photo was taken recently on the shores of Lake Michigan at Rogers Park, where the daughters of Mr. Adams visited at the home of the editor.

AT THE KIRK.

It was the Scottish minister's second Sunday in his own newly appointed parish and he had reason to complain at the meager collection.

"Mon," replied one of the elders, "they are stingy, vera stingy. But"—and he came closer and became more confidential—"the auld minister, he put 3 or 4 saxpences into the plate hisself, just to gie them a start. Of course, he took the saxpences awa' with him afterward."

The new minister tried the same plan, but the following Sunday was a repetition of the other—a dismal failure. The entire collection was not only small, but to his great consternation his own coins were missing.

"Ye may be a better preacher than the auld meenister," exclaimed the elder, "but if ye had half the knowledge of the world an' o' yer ain flock in particular ye'd ha' done what he did an' glued the saxpences to the plate."—Pittsburgh Chronicle-Telegraph.

Edward Tierney, Tyrone, Pa., has purchased an interest in the plumbing and heating business of W. W. Eckels, 1220 Pennsylvania Avenue, and the business will thereafter be conducted under the firm name of Eckels & Tierney.

Property owners in the Pittsburgh district are having difficulty with the sanitary inspectors who are insisting upon prompt compliance with the new housing law enacted by the last legislature, that requires the abandonment of cesspools. In the last six weeks nearly 2,000 property owners have complied with the new law and hundreds of others have received notice that they must proceed immediately to do so.

Modern Practice in Heating and Ventilation

XII.—More About Forced Circulation of Hot Water in Domestic Heating Plants. Layout Methods and Figuring Connections

By ALFRED G. KING

THE most successful systems of heating are without doubt those which have been the most carefully planned, and this statement is particularly true with regard to the designing and installation of a Honeywell or accelerated system. .

The radiation required to warm any certain building by an accelerated system of hot water heating may be estimated by any one of the reliable rules for computing radiation, and a reduction of 10 per cent. can frequently be made from the amount thus obtained owing to the greater efficiency of the radiators when attached to an acccelerated system. In fact a reduction of 15 or 30 per cent. could be made and yet afford sufficient warmth if it was desired to operate the system to full capacity or at high temperatures. We do not believe in attempting this as we do not advocate high temperatures, for with a heating apparatus as with an engine or other mechanical

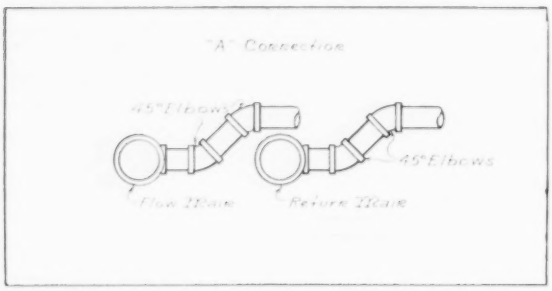


Fig. 1.

apparatus, it is false economy to drive or operate it to its extreme capacity. There should be sufficient radiation installed to warm the rooms or building in ordinary cold weather with a temperature of the water not exceeding 160 degrees at the boiler. This can be accomplished without difficulty by estimating the radiation in the usual manner and properly adjusting and locating the amount thus obtained.

The increased efficiency due to the greatly increased rate of transmitting the heat from the fire to the radiators more than offsets a reduction of 10 per cent. in the amount of radiation. Conditions of exposure, such as poor building construction, loose fitting doors and windows, rooms located on the north and west sides of the building, etc., should be noted and considered when estimating radiation. The allowances to cover these conditions were discussed in Chapter 2 of these articles.

Assuming that the radiation required has been correctly estimated and that the radiators have been located to the best advantage to cover the various exposures of the building, we may now give our attention to the installation of the piping and it is this portion of the work which requires the most careful study on the part of the steamfitter. The piping of an ordinary job of accelerated heating is a simple matter provided certain well defined principles are followed and rules governing the work are complied with; yet this portion of the work is approached by the fitter with indecision and uncertainty simply because he has not made himself fully acquainted with these principles and rules.

We may say first of all that the sizes of all pipes are determined by the area of the valves which they supply and the size of the valves or the valve area is governed by the size and position of the radiators.

The size of valves required may be considered as follows:

For Radiators Located on First Floor.

25 sq. ft., or less, ½ in. valve.
25 to 50 sq. ft., ¾ in. valve.
50 to 125 sq. ft., 1 in. valve.

For Radiators Located on Second Floor.

30 sq. ft. or less, ½ in. valve.
30 to 125 sq. ft., ¾ in. valve.
125 sq. ft. or more, 1 in. valve.

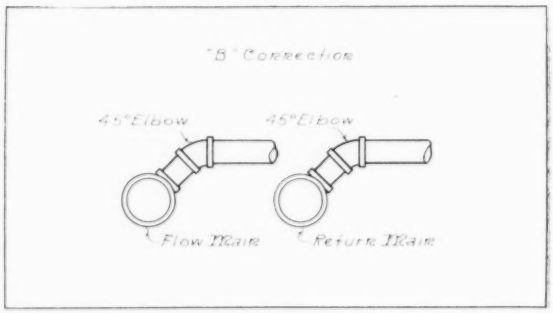


Fig. 2.

For Radiators Located on Third (or upper) Floor.

40 sq. ft. or less, ½ in. valve.
Over 40 sq. ft., ¾ in. valve.

There are exceptions to the employment of sizes as given in the above table. The main (as we shall explain later), should always end at a first floor radiator. If this radiator is 40 sq. ft. or less in size a ¾ in. valve should be used. For radiators exceeding 40 sq. ft. use a 1 in. valve. The other exception may be noted. When a branch of ordinary length is taken from the main by a "B" connection (as will later be described) to supply a first floor radiator a ½ in. valve is sufficient for a radiator of 35 sq. ft., or a ¾ in. valve for a radiator of 85 sq. ft. or less.

The areas of circles of various sizes corresponding to the commercial sizes of radiator valves are as follows:

½ in., .20 sq. in.
¾ in., .44 sq. in.
1 in., .78 sq. in.
1¼ in., 1.22 sq. in.
1½ in., 1.76 sq. in.
2 in., 3.14 sq. in.

The actual internal areas of commercial sizes of wrought iron pipe corresponding to the above are as follows.

½ in., .304 sq. in.
¾ in., .533 sq. in.
1 in., .862 sq. in.

1¼ in., 1.496 sq. in.
1½ in., 2.038 sq. in.
2 in., 3.356 sq. in.

As this difference is apt to cause confusion we employ the "circle area" or "valve area" in determining the pipe sizes for accelerated work, and the first rule to be laid down is that the area of the main leaving the boiler should equal or slightly exceed the combined area of the valves on all of the radiators supplied by it.

Rule 2. The main should terminate at a first floor radiator and at this point it should be two pipe sizes larger than the valve on this radiator. For example, suppose this radiator to have a ¾ in. valve the main would be 1¼ in., or if the valve was 1 in. the main would be 1½ in. in size, a reducing elbow in each case being employed to supply the "spud" or vertical pipe connection to the valve.

Rule 3. Never connect a branch from the top of a main. The first hot water generated at the boiler flows along the top of the main and the entire supply will seek the first outlet and there will be no circulation beyond such a connection until there has been sufficient hot water generated to supply the radiators fed by it and afterward only the excess hot water in circulation flows beyond this connection.

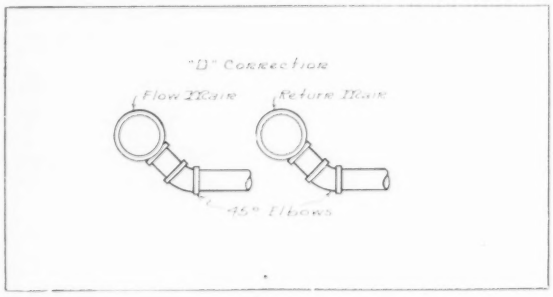


Fig. 3.

There are three types of pipe connections recognized and employed on Honeywell or accelerated systems, and from frequent usage we have come to know them as the A, B and D connections.

The "A" connection (Figure 1) is employed in taking a branch from the main to supply a first floor radiator or a first floor radiator and a riser to upper floor fed from the same branch, and this connection is only employed when there is no reduction in the size of the main at this point.

The "B" connection (Figure 2) is employed for the same purpose whenever a reduction in the size of the main is necessary in order to relieve the main of the air which would otherwise collect at the point of reduction.

The "D" connection (Figure 3) is employed in taking branches from a main or from other branches to supply risers to an upper floor radiator and may also be used to connect a branch to a first floor radiator when it is located very near to the boiler. In such a case it prevents the short circuiting of the circulation and assists in balancing the job.

The employment of the "D" connection, which probably was first employed in the Honeywell System, proved something of a surprise to the old time fitter who had been educated to refrain from trapping a pipe and to thus interfere with the circulation. He had been taught that the circulation in a gravity system is brought about by warming a column of water in one part of the system which when expanded and made lighter is balanced against a column of colder water (the return) in another part of the system causing a flow upward in the lighter column in order to maintain a balance, and that the slightest hindrance would impede this circulation. Therefore, we say, the "D" connection with the trapped branch was a surprise to him. He had been taught the truth as it would be applied to an open tank gravity system, and yet we may say there is no pipe connection on an accelerated system that is as valuable for balancing the circulation as the "D" connection. It prevents risers to upper floor radiators from robbing the circulation to those on the lower floor, and prevents the short circuiting through a riser into the return.

Rule 4. Carefully ream the ends of all pipe employed on a job of accelerated heating. The burs left by the wheels of the pipe cutter, unless removed by reaming, will cause a large amount of friction, thereby reducing the velocity of the circulation. The burs also reduce the area of the pipe at least one size. **The careful observance of this rule is most important.**

To properly install an accelerated piping system a plan of the work is essential. This need be only a quickly drawn pencil copy of the various floor plans on which the position and size of the various radiators should be shown and the size of the valves, according to the table given herewith, should be marked.

While it is better to show the piping system on the plan of the basement this is not essential as the same may be shown as well on the plan of the first floor.

First locate on the first floor plan the position of the boiler in the basement, then draw lines leading from the boiler as directly as possible to the radiators at the extreme end of the building. These will be the mains and they should be run in such a manner as to easily reach all radiators with branches not too long.

Next draw in cross lines leading from the main to first floor radiators. The position of the risers leading to the radiators on the upper floors should next be marked on the first floor plan. Whenever it is possible to do so these risers can be served by connections taken from the branches to first floor radiators, otherwise cross lines from mains to risers should be marked in on the plan.

The sizes of the mains and branches and the style of connections to be employed in taking off the branches may now be determined. To make clear our explanation of this work we show by Figure 4 a main supplying seven radiators having a total footage of 475 sq. ft. The total area of the valves supplied is 410 sq. ft., and the size of main necessary is 2½ in., having an area of 490 sq. in.

Beginning at the last radiator supplied and working backward towards the boiler we tabulate the valve areas as follows:

No. 1— 60 ft. radiator; 1 in. valve; area, .78 sq. in.
No. 2— 50 ft. radiator; ¾ in. valve; area, .44 sq. in.
No. 3— 75 ft. radiator, 1 in. valve; area, .78 sq. in.
No. 4— 50 ft. radiator; ¾ in. valve; area, 44 sq. in.
No. 5— 55 ft. radiator; ¾ in. valve; area, 44 sq. in.
No. 6—125 ft. radiator; 1 in. valve; area, 78 sq. in.
No. 7— 60 ft. radiator; ¾ in. valve; area, 44 sq. in.

The combined valve area of No. 1 and No. 2 radiators is 1.22 sq. in., requiring a 1½ in. main. Adding the valve area of No. 3 radiator (1 in.-.78 sq. in.), we have a total of 2.00 sq. in., requiring a 2 in. main, and therefore a B connection must be used at this point. The next branch supplies radiators No. 4 and No. 5, each having a ¾ in. valve. Adding the combined area of

these valves (.44×2=.88) we have a total valve area of of 2.88 sq. in. to be supplied, and therefore the 2 in. main is sufficient in area and this branch must have an A connection; the risers to second floor are made with D connections. The next branch supplies a radiator of 125 sq. ft. having a 1 in. valve (area .78) and 2.88 plus .78 gives a total required area of 3.66, showing the 2 in. main to be insufficient to supply this additional connection. A 2½ in. main is required and the B style of connection is employed. The last radiator to be supplied is a second floor radiator of 60 sq. ft. having a ¾ in. valve. The addition to this area (.44) gives a total of 4.10 sq. in., and does not change the size of the main which is now 2½ in. and has an area of 4.90 sq. in. The style of connection is a D as employed when connecting to risers leading to upper floors. This simple method of determining sizes may be used for jobs of any size.

The pump and water supply system business is the hardest proposition for these mail-order houses to handle because of the varying conditions under which the pump must be installed and operated. On this class of goods the local dealer should not lose a single order to the mail-order house, if he would post up on this line of goods and try to get a line on prospective purchasers in his locality. The salvation of this business to the local trade lies in that paragraph of your article which reads:

"If persistency of this same sort were followed by live dealers in their local centers, the results would be many times better for them. The quality of their goods would stand up under inspection, and the lines could be shown on the floor to excellent advantage."

Your Mr. Marquam knows what we are up against in stirring the plumbing trade up to the possibilities of this business. All of us can do lots of good by keeping after the plumbing trade so the better class will devote some

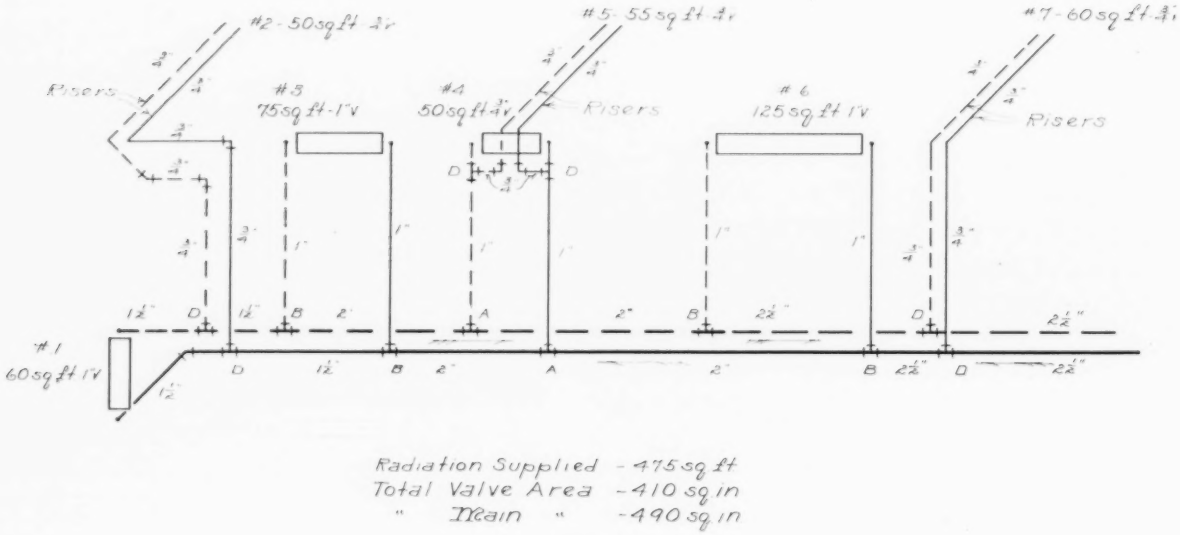

#2 - 50 sq ft 2 r
#5 - 55 sq ft 2 r
#7 - 60 sq ft 3 r
Risers
#3
75 sq ft - 1 r
#4
50 sq ft 2 r
Risers
#6
125 sq ft 1 r
Risers
#1
60 sq ft 1 r
Radiation Supplied - 475 sq ft
Total Valve Area - 410 sq in
" Main " - 490 sq in

Fig. 4.

THINKS EDITORIAL ON MAIL ORDER HOUSES TIMELY.

Water Supply System Manufacturer Thinks Plumbers Can Get This Business If They Will Go After It.

We want to congratulate you on your last issue (P. 327, of Dec. 13), particularly the gentleman who is responsible for "Big Ben-ing" the trade to the fact that mail-order houses are picking off an enormous volume of business which they could get with very little effort.

It is pretty generally known that these mail order houses handle a cheap grade of goods, particularly in the line of plumbing supplies, and the local plumber could save many an order by talking quality of the goods he could furnish. Your note of warning is so timely and I am so deeply impressed with it that if you care to run off the necessary number of sheets, we will be very glad to enclose them with the next circular letter we get out to a mailing list of about 8,000 plumbers.

You speak of the attractive literature sent out by these mail-order houses. Manufacturers of goods sold and installed by the plumbing trade get out far more attractive printed matter, which they are only too anxious to supply to the trade for distribution. Many of us solicit the trade to send us lists which we will circularize ourselves.

little time to making a little profit by selling goods instead of competing with each other on plumbing contracts by figuring so close that there is no profit left in the contract for any of them. I have been told time and time again by unsuccessful bidders when a plumbing contract was let, that it was a cinch the successful bidder would not make any money, and I have been later told by the successful bidder that he did not make any money.

W. T. Hatmaker, Sales Manager.
Dayton Pump & Mfg. Co., Dayton, Ohio.

PLEASED WITH "MILWAUKEE MIXER" STORY

Editor "Domestic Engineering":—In the November 8th issue of "Domestic Engineering" you had an article headed "A Milwaukee Mixer," in which you say a lot of nice things about our old friend and associate, Edw. F. Niedecken. It is the best write-up on any man in this line of business that I have read for years and I want to take this opportunity of complimenting you on the manner in which you have set forth Eddy's good qualities. We all hope that he will be with us many years to come. Also that "Domestic Engineering" will continue to increase in circulation and prosperity.

With kindest regards believe me, sincerely yours,

Theodore Ahrens, President,
Standard Sanitary Mfg. Co., Pittsburgh, Pa.

The Effect of Gas Accumulation in Sewers

Some of the Work of the Fire Preventive Bureau of Chicago, Which Has Gone Into the Subject of Gasoline and Oil in Sewers

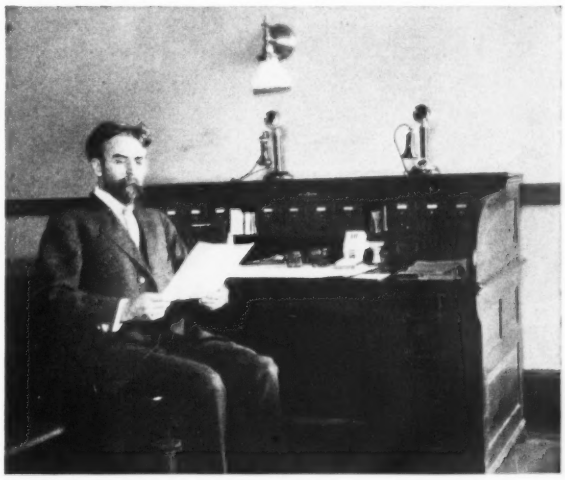
By THOMAS J. CLAFFY

A RECENT explosion of gas in a public sewer in the city of Pittsburgh has focused the attention of the student in that branch of sanitary engineering on the ever-present danger of gas in sewers and drains. It is fitting at this time of the year that we take a mental inventory of our activities in that respect, that we may determine where we stand as we near the threshhold of the year 1914.

In the daily press of the City of Pittsburgh we read that on November 25th an explosion occurred in a sewer approximately 9 ft. in diameter which blew it up for over a mile of its length. This caused incalculable damage to street paving, buildings, gas and water mains, bridges, railroad tracks, etc., and the resulting flood waters completed the destruction by inundating cellars and basements, and in some instances first floors of buildings in the vicinity of the explosion.

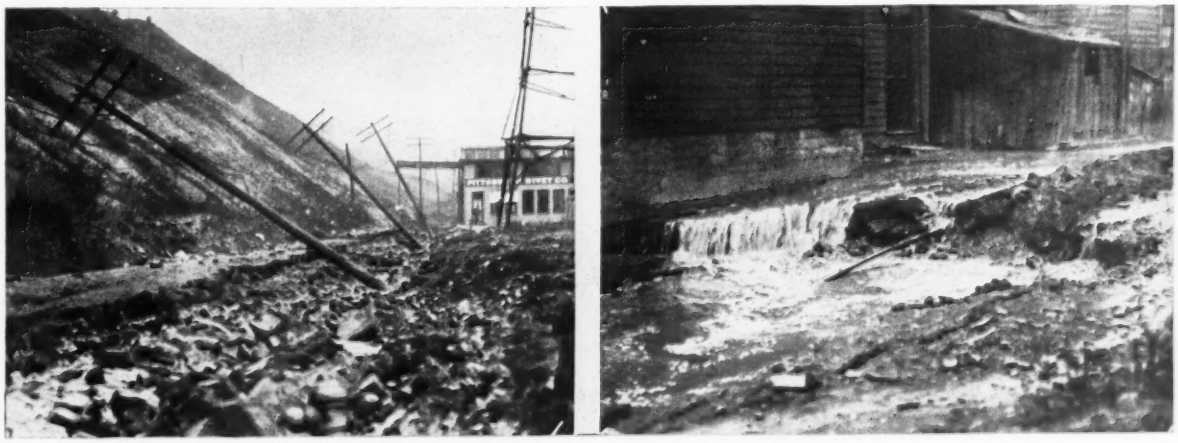
Whether the cause has been determined absolutely we are not aware at this writing, but it appears quite probable that gasoline may have been the cause. The modern dry cleaning establishment has proved on many occasions to be a death trap to firemen or other employes by explosions from naphtha in house drains or in cellars or basements. Now the public garage has come upon the field and adds its quota of gasoline and oils to the overloaded sewers. Some cities have attempted to meet this problem when spurred to action by calamities such as that in Pittsburgh, but on a smaller scale.

In 1912 the City Council of Chicago passed ordinances as amendments to the Building Code, which established what is now known as the Fire Prevention Bureau. This is a sort of public safety branch of the city government and is required to supervise the construction and maintenance of dry cleaning establishments and public garages, besides keeping a watchful eye over theatres and similar places of public assembly where the fire hazard exists. This Bureau came into active operation during the year 1913 and among the early activities it took up the public garage question, and has since found that it was necessary to get in touch with the operations of the Sewer Division and the Sanitary Bureau of the Health Department, as these two bureaus are charged with the responsibility of the installation of house drains.



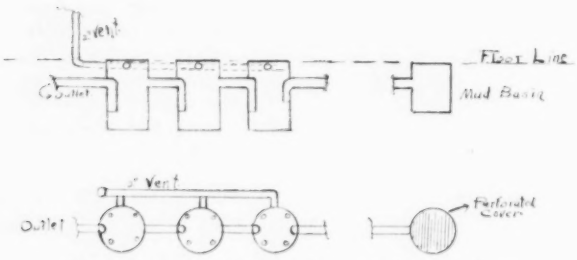
Thomas J. Claffy, President, American Society of Inspectors of Plumbing and Sanitary Engineers, at His Desk in Chicago.

A system of oil eliminating basins was designed and adopted to meet the requirements of these two industries. That there should be some opposition to the ideas expressed by the designers of the system mentioned is to be expected. One individual especially was from Missouri, so we proceeded to demonstrate that he did not know it all and that we could "show him" even if he was from Missouri. After being shown about his model garage (model in his estimation), we arrived at the boiler



Some of the Effects of the Gas Explosion in Pittsburgh Sewers.

room in the basement and after some time located the catch basin in one corner. This room had been walled off from the rest of the building and could only be entered from an alley. The catch basin was about 5 ft. below the grade of the alley and received the waste from the wash room over the boiler room where most of the machines were cleaned. When the cover was removed there was quite a smell of gas. A hoe was dipped into this waste matter and upon being held near the fire immediately blazed up like a bunch of burning tow. The gentleman from Missouri admitted that he had been shown.



Suggested Plan of Garage Drains, to Overcome Danger from Explosion.

We have had no further trouble in enforcing compliance with the requirements governing the installation of drains for public or private garages. It is indeed highly necessary that serious study be given this all-important question by those who are clothed with the authority and responsibility of a plumbing inspector, city engineer, or other individual of a municipal government having to do with public safety as well as public health. Such individuals should try to obtain a report of the Pittsburgh catastrophe, as it surely must contain a wonderful amount of material for serious study, and it is only by serious study that we can hope to attain that degree of efficiency that will keep us abreast of the times.

The accompanying diagram shows how oils are eliminated and gas carried off by suitable vent pipes, which if installed in garages, dry cleaning establishments, or other places where oils are being used will assuredly lessen the danger of explosions in sewers or the pollution of the air in houses.

Too much attention cannot be given to prevention of this sort, and the master plumber has an opportunity to do good work along this line.

THINK "DOMESTIC ENGINEERING" AN APPROPRIATE CHRISTMAS GIFT.

Progressive Firm of Ohio Plumbers Arrange to Have Copies of "Domestic Engineering" in the Hands of All Their Employes.

Editor "Domestic Engineering"—In our estimation of your technical weekly paper, known as "Domestic Engineering," it is so valuable, not only to the master plumber but to the journeyman plumber and steamfitter, that after considering for some time what would be most appropriate to give our men for Christmas, we have decided on a year's subscription to "Domestic Engineering."

We are enclosing a check to cover eight subscriptions for one year, and also covering the purchasing of eight Johnson's New Handy Manuals, for plumbers and steamfitters.

It is in our estimation the most appropriate gift we can give our men.

We will appreciate it very much if you will return to us receipts for a year's subscription for each of the following addresses given, with a copy of Johnson's New Handy Manual for each address, and have them sent to us so that we will receive them not later than the 23rd instant.

Trusting this will meet with your satisfaction, and that you will comply with our request so far as time is concerned, we are, very truly yours, Carey & Hall, Defiance, Ohio.

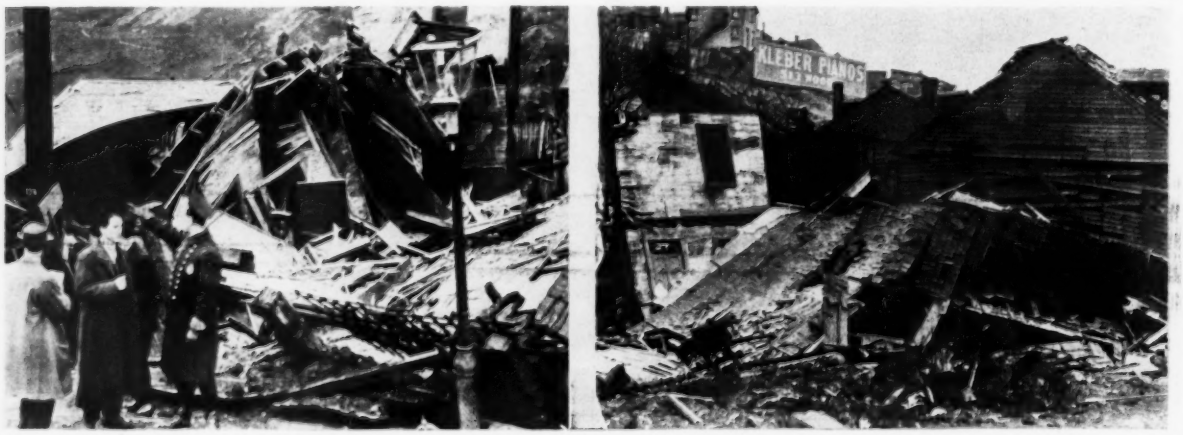
Just a Sunbeam.

By William Jacobus.

Just a sunbeam breaking through
The shadows of the day,
Just a little gleam of light
To brighten o'er the way.

Just a hand out-reaching forth,
To lift, mayhap a load,
Better thus to smile, you know
Then to out-croak the toad.

Give of cheer where'er you go,
Some fellow may be down,
And the happy word, my boy;
May chase away the frown.



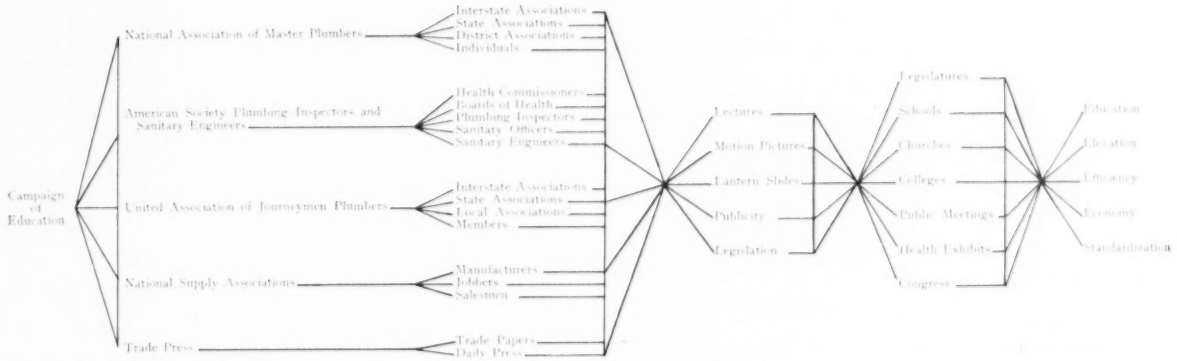
Some of the Wrecked Houses in Pittsburgh, the Result of the Explosion of Gas in a Public Sewer.

Converting the Public to Good Sanitation

Efforts of the Ohio State Board of Health and the State Inspector of Plumbing Meeting With General Approval. What Has Been Done

By WILLIAM C. GROENIGER

A PROPAGANDA of sanitary knowledge for the public. Let this be our motto for 1914. The accompanying chart will convey my idea of a campaign of education among the people at large to give them a better appreciation of the great sanitary mission that has been entrusted to the master plumber. The missionary work which should be carried on among the public should, I believe, be divided among the various organizations as indicated in the chart shown herewith. By an interesting series of diversified lectures on modern sanitation in all its different aspects, I am sure great good could be accomplished for both the public and the trade.

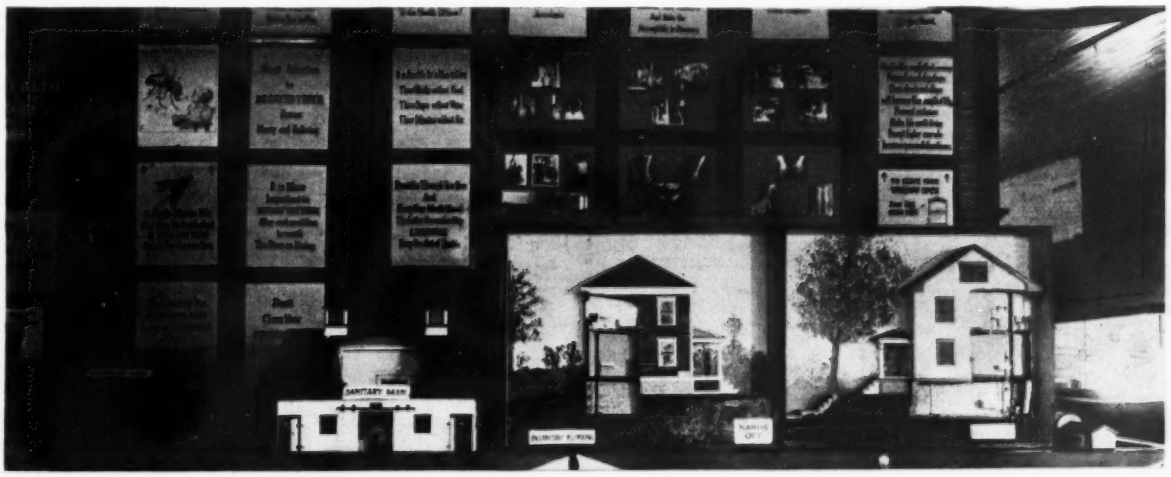


Suggestions for a Plan of Campaign to the General Public for a Better Knowledge of the Part Played by the Master Plumber.

In regard to the Ohio State Health Exhibit, and the two mdoels of sanitary and insanitary plumbing, these two models have interested many of the visitors to the Health Exhibit, showing that the public desire to know what good plumbing is, in order to be able to demand it. Starting at Columbus with the Ohio State Fair in September, the exhibit has been to Marysville, Marion, Mansfield, Wooster, Akron, Painesville, Lorain and Sandusky. Each evening a member of the staff of the State Board of Health lectures upon a subject pertaining to preventive medicine which includes two motion pictures upon tuberculosis. Owing to the amount of work on hand the writer has been unable to take an active part in this work, which means so much to the health of the citizens of our commonwealth.

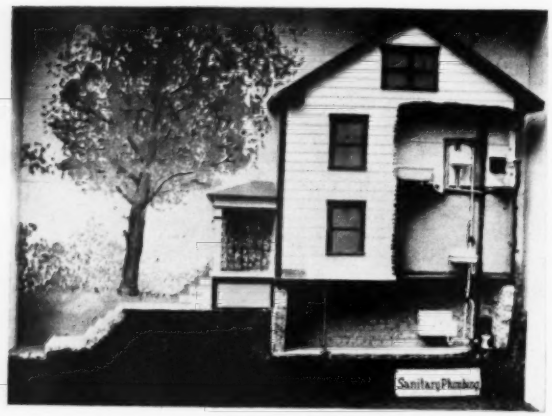
I trust that the new year will bring with it sufficient help to take up this end of the work.

A revised plumbing code adopted as the Rules and Regulations of the State Board of Health is now in the hands of the printer. Ten thousand copies are being

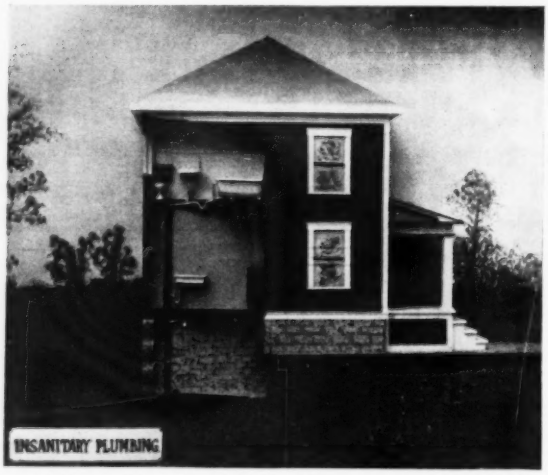


View of the Exhibits of the Ohio State Board of Health for the Promotion of Better Methods of Sanitation.

printed for distribution throughout the state, and we expect to have them in the hands of architects, manufacturers, jobbers, boards of health, health officers, plumbing inspectors, master and journeymen plumbers on or about Jan. 1, 1914.



A Drawing in the State Exhibit to Explain the Meaning of "Sanitary Plumbing."



What Constitutes Insanitary Plumbing, as Illustrated by the Ohio Exhibit.

I thank "Domestic Engineering" for its co-operation, and wish you all the best compliments of the season.

Convention Dates

January 12 and 13, 1913.—The annual convention of the Missouri State Association of Master Plumbers, at St. Louis, Mo., with headquarters at the Annex Hotel, Sixth and Market Streets. The officers of the association are: President, G. A. Wood, Springfield; first vice-president, M. P. Connor, Kansas City; second vice-president, Henry Moore, St. Louis; treasurer, J. P. Carroll, St. Louis; secretary, C. L. Smith, 2408 East Twelfth Street, Kansas City, Mo.

January 13, 14 and 15, 1914.—The annual convention of the Iowa Master Plumbers' Association, at Keokuk, Iowa. The officers of the association are: President, A. B. McCarten, Dubuque; vice-president, Wm. O. Ewinger, Burlington; treasurer, W. D. Hogan, Sioux City; secretary, R. A. Ellis, Waterloo; organizing secretary, R. E. Knauer, Des Moines, Iowa.

January 16, 1914.—The first annual convention of Iowa Master Steam Fitters' Association, at Keokuk, Iowa, with headquarters at the Iowa Hotel. The officers of the association are: President, J. F. Garvey, Mason City, Iowa; secretary, R. Knauer, Des Moines, Iowa.

January 16, 1914.—The first annual convention of Iowa vention of the Wisconsin Master Plumbers' Association, at Madison, Wis. The officers of the association are: President, S. V. Hanley, Milwaukee; vice-president, George F. Reeke, Green Bay; secretary, Louis Sonntag, Sheboygan; treasurer, F. E. Green, Janesville; national state vice-president, Jacob Schub, Milwaukee.

January 20, 21 and 22, 1914.—Annual meeting of the American Society of Heating and Ventilating Engineers, to be held in the Engineering Societies Building, 29 West Thirty-Ninth Street, New York City. The officers of the society are: President, John F. Hale, Camden, N. J.; vice-presidents, Albert B. Franklin, Boston, and Edmund F. Capron, Chicago; treasurer, James A. Donnelly, New York City; secretary, Edwin A. Scott, New York City.

January 27, 28 and 29, 1914.—The twenty-second annual convention of the Illinois Master Plumbers' State Association, at Rock Island, Ill. The officers of the association are: President, W. J. Hilliard, Elmhurst; first vice-president, C. D. Brownell, Champaign; second vice-president, John L. Robertson, Mason City; treasurer, O. W. Dawson, Decatur; secretary, W. C. Haviland, Coulter Block, Aurora, Ill.

February 17, 18 and 19, 1914.—The twenty-third annual convention of the Ohio Master Plumbers' State Association, at Cincinnati, with headquarters at the New Gibson House. The officers of the association are: President, F. W. Sponseller, Canton; vice-president, James A. Wood, Toledo; secretary-treasurer, Eb. Ellen, Cleveland.

February 26 and 27, 1914.—The annual convention of the Nebraska Master Plumbers' Association, at Omaha, Neb. The officers of the association are: President, G. H. Wentz, Lincoln; vice-president, F. W. Barclay, Beatrice; treasurer, H. H. Krueger, Omaha; executive clerk, J. B. Conîngham, 402 City National Bank Building, Omaha.

March 9, 10 and 11, 1914.—Annual convention of the Indiana State Association of Master Plumbers, at Lafayette, Ind. The officers of the association are: President, Wm. J. Woolley, Evansville; vice-president, Joseph G. Hayes, Indianapolis; secretary-treasurer, A. E. Werkhoff, Lafayette, Ind.

April 21 and 22, 1914.—Annual convention of the Pennsylvania State Association of Master Plumbers, at York, Pa. The officers of the association are: President, D. F. Durkin, Philadelphia; vice-presidents, George W. Palmer, Lemoyne; Robert Purse, Johnstown; E. D. Swoyer, Allentown; treasurer, John H. Birchall, Allentown; secretary Harry L. Righter, 5424 Germantown Avenue, Philadelphia.

Bids for the heating and plumbing of the proposed new Oregon State Normal School at Cheney, Ore., brought the total for the building slightly above the amount appropriated by the legislature, and the awarding of contracts has been postponed. The building is to cost in the neighborhood of $300,000.

Questions and Answers

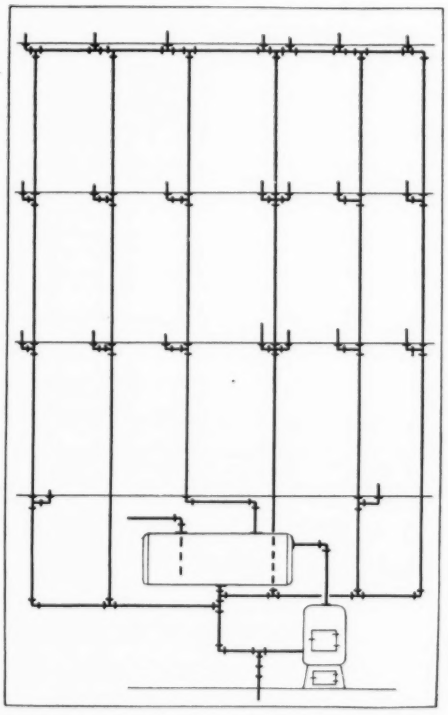
HOT WATER SUPPLY FOR FOUR STORY HOTEL.

Editor "Domestic Engineering:"—What system of hot water supply would you advise for a hotel building, four stories in height?

The three upper floors are practically the same, some of the rooms having private baths and others having only lavatories.

Baltimore, Md. "Journeyman."

Without knowing any more about this job than "Journeyman" gives us in his letter, we would advise using the overhead system of supply, taking the main



Hot Water Supply System for Four-Story Hotel.

flow pipe from the hot water tank in the basement as directly as possible to the upper floor, and from this point running horizontally to the different drop risers.

This would seem to be the desirable method for the reason that the three upper floors being the same, each of these risers would be able to deliver hot water to a number of bath rooms or lavatories, as the case might be.

On work of this character, it is essential that circulation be provided to the supply system, not only for the sake of convenience in getting hot water quickly, but to prevent the great waste of water that would result from drawing off long lines of cold water whenever hot water was required.

Therefore the drop risers should enter a return in the basement, and this return carried back to the hot water tank.

In our illustration we show the general idea of such a system of supply.

TROUBLE FROM CONDENSATION.

Editor "Domestic Engineering":—A printing office in this town has a linotype machine with melting pot heated by gasoline. A 1¼-inch galvanized pipe with a tin hood was placed over the pot to carry the fumes out of the

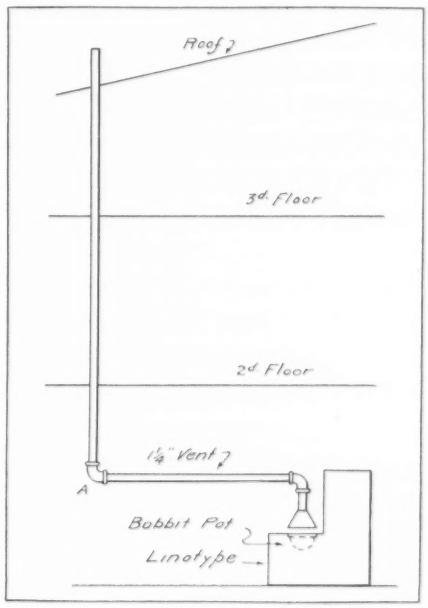


Fig. 1.

building. This pipe was also used to vent a lavatory on the third floor, above the linotype room. This pipe was sweating constantly to such an extent that it became a nuisance. Thinking that the lavatory trap had something to do with the dripping, the pipe was disconnected from the lavatory, but the desired result was not obtained, the dripping continued. I cannot understand why the water drips from the inside of this pipe. Do you think that the use of block pipe would have prevented this trouble? What would you advise me to do to obtain a satisfactory arrangement. Herewith you will find rough sketch, Fig. 1, showing present piping.

Kingfisher, Okla. Plumber.

As we understand this matter the venting of this babbit pot is now accomplished as shown in our illustration, and yet there is still a drip that comes from the pipe.

Our opinion is that the pipe being of considerable length, the heat of the fumes from the babbit pot is not great enough to heat the higher portion of the vent pipe, and that the air in this pipe being warm and moist, is condensed against the surface of the cold pipe, and it is this condensation that causes the drip.

So long as a metal pipe is used, we do not see that the trouble will be remedied, and cannot see how the use of block tin pipe would give any better results.

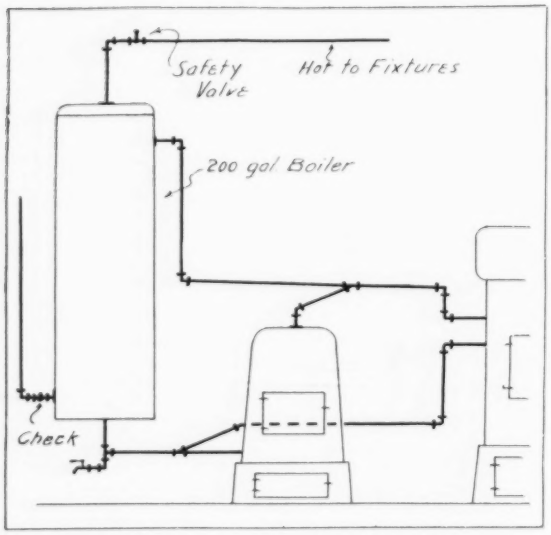
In our opinion, 1¼-inch pipe is too small to do effective work, and we would suggest using 2-inch galvanized sheet

iron pipe. There would be a thinner body of metal, and very likely the condensation in this pipe would not cause trouble. We should think that in cold weather frost would fill the 1¼-inch pipe at the top, and often close it, and would therefore advise increasing the vent pipe, no matter what size is used, to 3-inch or 4-inch from a point below the roof, as in the case of a soil or waste stack.

If the 1¼-inch pipe is doing effective work, however, and there is no complaint on that score, we would suggest taking a very small drip pipe out of the bottom of the elbow at A. This might be a ¼-inch, or even ⅛-inch pipe, and would probably not affect the proper venting that the 1¼-inch pipe is supposed to do.

TANK HEATER BURSTS.

Editor "Domestic Engineering:"—Enclosed you will find a rough sketch of a hot water system, installed where a great quantity of hot water is used. We have had a lot of trouble with this system. When both heaters are



System in Which Tank Heater Bursts.

fired at the same time it causes tank heater to burst in a casting near the top of the heater. I would like to know why this heater bursts.

St. Paul, Minn. "Inquirer."

In our opinion, the cause of the bursting of the small heater is due to the fact that opportunity for expansion is cut off by the check valve used on the cold water supply to the boiler. It will be argued that the safety valve will take care of this expansion, but it is very probable that either the valve is not working or is wrongly adjusted, or possibly is being held down purposely. These things often happen, and an explosion is the natural result. We do not believe that either the safety valve or check valve are necessary, and would advise taking them out.

If the safety valve must be used, however, it should be set well within the limit of safety, and it should be tested often to see that it is working properly.

Plumbing and steam heating specifications will soon be ready for the new lodge and club rooms to be erected by the Eagles Lodge at Bluefield, W. Va.

RADIATOR DOES NOT HEAT.

Editor "Domestic Engineering:"—Herewith you will find a rough sketch of a little combination hot water system and heating plant, consisting of a tank heater connected up to a 30-gallon boiler and radiator, that does

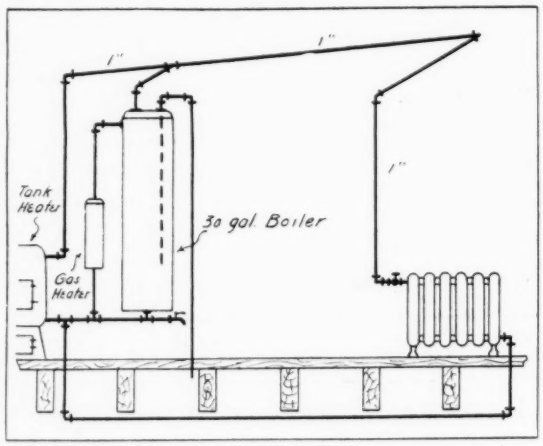


Fig. 1.

not circulate properly. The water has to reach a temperature of about 190 degrees in the boiler before I can get proper results at the radiator, and the radiator will get hot about two-thirds down. The water will also back up from the tank heater through the bottom of the boiler. The radiator has three columns and seven sec-

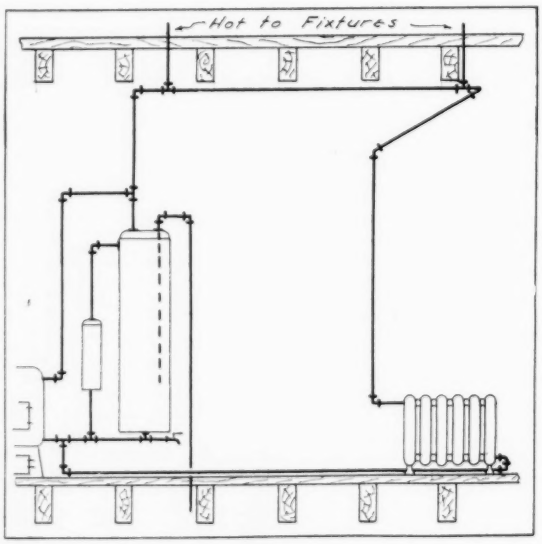


Fig. 2.

tions and it is 44 inches high. Can you tell me how I can cure this job?

Fort Wayne, Ind. Thomas A.

Fig. 1 shows the job which "Thos. A." says does not work properly.

Our opinion is that there are two difficulties. In the first place the flow pipe to the radiator probably does not rise high enough to give sufficient motive power to

carry the return water from below the floor up to the heater. In the second place, we believe the radiator is very likely air-bound.

If the return could be run above the floor, and the flow carried to the ceiling, as in Fig. 2, we believe the

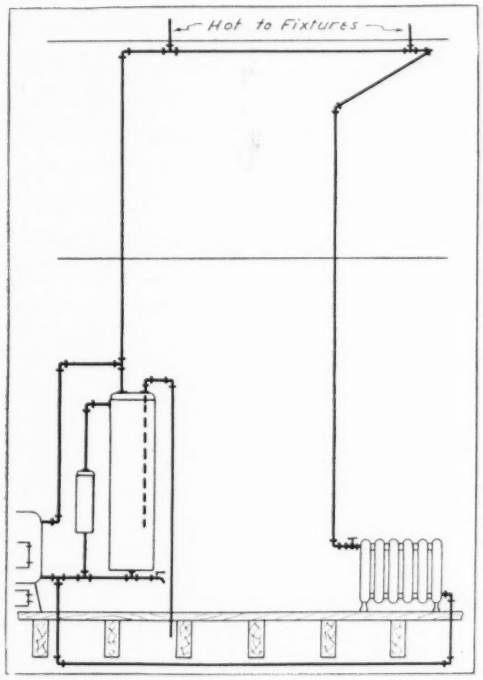


Fig. 3.

radiator would work much better. In the sketch submitted to us, Fig. 1, nothing is shown concerning the supplying of fixtures with hot water, but we do not doubt that the boiler has this duty to perform also. If this is so, the branches to fixtures, would vent the air that might otherwise accumulate, and thus remedy this difficulty.

If however, it is not possible to carry the return above the floor, and the flow pipe can be run from the boiler as shown in Fig. 3, we believe there would be sufficient head to carry the return from below the floor back to the boiler.

VENT PIPE FOR GAS RANGE.

Editor "Domestic Engineering:"—Do you consider it absolutely necessary to use a vent pipe on a gas range?

"Gas Fitter."

Calgary, Alberta, Can.

In answer to "Gas Fitter", we would say that as far as being necessary to the proper operation of the gas range, the vent pipe is not necessary, but for comfort and health it is necessary.

Unless the products of combustion are carried off through this pipe into the chimney flue, just as in the case of a coal range, the air of the room will soon become vitiated, making it not only uncomfortable to those working in the room, but injurious to their health if long continued.

SUGGESTION FOR RADIATOR CONNECTIONS.

Editor "Domestic Engineering:"—Referring to your "Questions and Answers" in the November 22nd issue of your valuable journal, I think the wall radiator connection made by M. M. Q., of Kingston, Pa., is excellent. The connection, made by a steamfitter in Edmonton, Alberta, I believe, could be improved upon. It seems to me that he blocks his circulation by the connection at the top of his tank. Herewith you will find a sketch, Fig. 1, showing how I would have done this job. By making the connection as I have indicated it, he can distribute hot water to

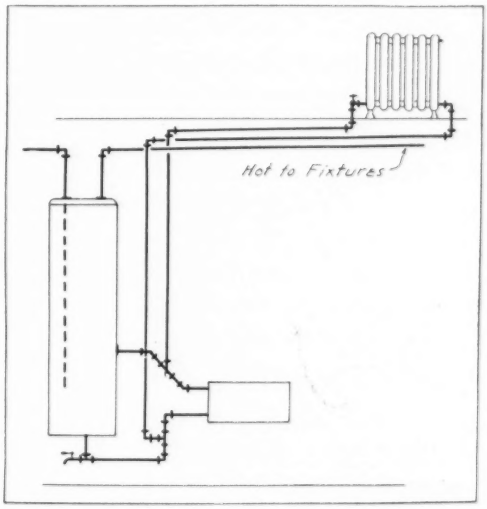


Fig. 1.

fixtures and the radiator in a more perfect manner. Don't you think I am right?

Huntingburg, Ind. "Beginner."

We are glad to have "Beginner's" suggestion in the matter of radiator connections from the hot water supply system.

There is no question that these connections will do good work in heating the radiator. The only question is whether the radiator being thus favored, will not draw from the supply of hot water so that the supply to fixtures will be cut down to an insufficient amount. Generally the range boiler's first duty is to supply hot water to fixtures—then if it can be done without injury to this part of its work, it is all right to heat a limited amount of radiation.

In "Beginner's" connections hot water will go to the radiator first, but he must heat up the whole body of water in the boiler before a supply can be furnished to fixtures.

Generally we believe better results can be obtained by storing all hot water in the boiler first, and from there distribute hot water to both fixtures and radiator.

However, there is a great difference in requirements of different jobs, and what will do good work in one case will not do so well in another. Therefore, in such work as this, good judgment should be used in making a selection of the different connections that are possible.

Chas. B. Powell, of Shippensburg, Pa., has two good contracts on hand for plumbing installations in new residences for E. S. Eyler and Chas. Segnar.

MINNEAPOLIS MASTER PLUMBERS' ANNUAL MEETING AND BANQUET.

From now on, Minneapolis master plumbers will reckon time from Monday evening, December 22, 1913, for it was on this night that they celebrated their annual meeting and Christmas tree with a real Santa Claus and a Christmas present for everyone.

The meeting was held in the main dining room of the Hotel Nicollet and was preceded by a pool tournament, participated in by both the master plumbers and the jobbers. Next in order was a sumptuous banquet and this, in turn, was followed by the business meeting and gridiron.

The report of President George K. Belden was listened to with a great deal of interest, as he has been a particularly efficient executive, and the great strides which the association has made in this city is largely due to his untiring efforts. The report of the treasurer, Harry, Thompson, was most satisfactory, showing a neat balance on hand. At about this time, J. M. Jacobson, past-president of the association, arose and after a very pretty little speech presented President Belden with a watch, which

Minneapolis Master Plumbers' Christmas Souvenir.

was packed in a very careful manner. President Belden accepted the package, opened it and found that it contained a watch which may have cost 5 cents. His discovery was greeted with a gale of laughter and it was hard to tell who was the most embarrassed, Mr. Jacobson, who did the honors, or President Belden, who received the package. However, all's well that ends well, and the laughter having subsided and the watch having been duly inspected by everybody present, Walter Scott slipped "Jake" the real watch and "Jake" had the pleasure of making a second presentation speech, to which President Belden very fittingly replied. The report of the Executive Secretary L. P. Worrall showed conclusively that he is the right man in the right place and it is hoped that with the new automobile and garage, presented to him during the meeting, that he will be able to do more effective work than ever before.

The present officers have been so faithful that they were re-elected without any opposition, the following men remaining at the helm: George K. Belden, president; L. H. Johnson, vice-president; Harry Thompson, treasurer; S. B. Harvey, secretary; L. P. Worrall, executive secretary.

Heretofore the association has had a board of managers, which included the officers and seven men elected at large. This has now been changed to the officers, two men elected at large, and the chairmen of the five district associations, also the state president, if a Minneapolis man, is an ex-officio member of the board. The district association may be explained in this way. First of all, the local association, which meets once every four weeks, at which time a dinner is served, followed by a business meeting. This is the "big meeting" and is remarkably well attended. In addition to regular business, some feature of interest is provided, as for instance, the presence of a banker, a uccessful business man or an accountant, to whom is granted the time necessary to tell how it is possible to become a better business man. The five district associations are Central, North, South, East and West, which meet once a week in the Commerical clubs of their own particular district.

The serious business of the evening being over, the folding doors were thrown open and master plumbers discovered a Christmas tree with Santa Claus right on the job. He then proceeded to present each and every one present with something particularly useful to that particular person and accompanied each present with a bit of repartee which demonstrated that Santa has been studying our little weaknesses and had all of us pretty well sized up.

In addition to the beautiful presents, everyone was given a perpetual calendar, the compliments of the Minneapolis Master Plumbers' Association.

The jobbers were then given two minutes each in which to deliver an oration or a sermon. They were timed by Vice-President Johnson, and successfully squelched by Walter Scott with his pop-gun when their time was up.

A. W. Scott, one of the first master plumbers in Minneapolis, was present and in a few brief sentences advised the plumbers to get back to the land as soon as the years began to show and to forget the hurry and worry of commercial life.

Eight jobbers and 60 master plumbers enjoyed the feast, and during the later part of the evening several more master plumbers dropped in, and of the entire membership not more than one or two were absent, and they probably had good cause. It was some big time.

ANNUAL BALL OF THE MASTER PLUMBERS' ASSOCIATION OF BOSTON AND VICINITY.

Paul Revere Hall in Mechanics' Building, Boston, was the scene of a happy gathering on Thursday evening, December 18th, for on that evening the members of the Master Plumbers' Association of Boston and vicinity held their thirty-first annual ball. Like all understakings of the association it was a huge success particularly as to its social features. More than 150 couples participated in the dancing and many others who do not dance watched the festivities "from the side lines." To do justice to the gowns of the ladies would require the services of a society editress. A feature of the gathering was the unusual number of young people. There also was a good representation of the supply trade present including most of the city salesmen with whom the master plumbers do business.

Members and their friends began to arrive by eight o'clock and were welcomed by the officers: Patrick J. Sullivan, president; Orren C. Poole, vice-president; William J. Nason, financial secretary; Llewellyn W. Stevens, recording secretary; and Thomas J. Tute, treasurer; and by a reception committee composed of D. G. Finnerty, Daniel Shannon, David Craig, E. C. Kelley, F. F. Muldowney, J. J. Rodday and Andrew F. Curtin.

At eight o'clock Strachan's Orchestra began a con-

cert which lasted for an hour and included four numbers: March, "Naval Heroes"; medley overture, "Shapiro Hits"; concert waltz, "Dreams of Childhood"; and finale "Knockout Drops." By the time nine o'clock arrived the hall was fairly well filled and the first waltz brought a good number of dancers onto the floor with a larger crowd for each successive number.

After nine dance numbers the company halted long enough to partake of a sumptous supper served by Caterer Seiler in an adjoining hall. The menu called for roast chicken, ham, escalloped oysters, sweetbread cutlets, peas, lobster and potato salads, banana fritters, ice cream, frozen pudding, sherbet, rolls and coffee.

The remainder of the dance program followed the supper and although some of the members did not feel much like moving after their repast the music soon brought them to their feet. It was after one o'clock before the last waltz was completed.

President Sullivan was grand marshal of the evening, and John W. Zehringer was floor manager. His aids were: W. F. Arkinson, Walter P. Jones, J. P. Riley, John J. Vogel, L. W. Stevens and J. G. Gillespie. Vice-President Poole was chairman of the committee in charge of the ball and had as his assistants John J. Vogel, James S. Cassedy, John W. Zehringer, Walter P. Jones and Secretary Stevens. The officers and members of the executive committee, composed of Mr. Cassedy, Mr. Vogel, C. H. Cronin, David Craig, Andrew J. Curtin and Walter P. Jones, also had a hand in making the affair the success that it was.

Illness prevented Mayor John F. Fitzgerald, who in past years has "dropped in" on the party for a few moments, from attending this year but Congressman James F. Curley, who is a candidate for mayor to succeed Mr. Fitzgerald, paid a short visit to the hall. It was during the evening while the ball was in progress that Mayor Fitzgerald issued a statement to the newspapers announcing his withdrawal as a candidate for re-election on the advice of his physician.

The "among those present" list would contain some representative of practically every member of the association as well as representatives of all of the jobbing houses in the city. P. A. Lang had charge of the door preferring that position to participating in the dancing. A. Lowenthal, a jobber who has been in the business for 38 years, and who never has missed a ball or an outing of the society, spent the first part of the evening at the hall with a smile and a handshake for all "the boys." The supply houses represented included the F. W. Webb Mfg. Co., W. B. Hubbard Sons Co., George E. Gilchrist Co., James Barrett Manufacturing Co., Locke, Stevens & Co., R. Estabrook's Sons and others.

CHICAGO PLUMBERS' ANNUAL MEETING.

The Chicago Master Plumbers' Association will hold its annual meeting on Saturday evening, January 3, 1914, in the Association's hall on the 12th floor in Schiller Bldg., Randolph Street, Chicago. The event will be celebrated with a banquet and entertainment. The dinner will be served at six o'clock. Reports of the retiring officers and election of officers for the ensuing year will follow. The members will thereafter witness a vaudeville performance, which will be interspersed with refreshments. Cigars will also be passed around. It is expected that every member of the association will be in attendance.

Macomb, Ill.—Wilson & Gallagher have opened a plumbing establishment in this town.

MANHATTAN MASTER PLUMBERS' ANNUAL BALL.

In spite of the inclement weather which prevailed on the evening of December 10th in New York City, hundreds of members of the Manhattan Branch of the Greater New York Master Plumbers' Association sallied forth with their families and friends to enjoy their annual entertainment and ball. The function was held in the Lexington Opera House, and the theater was filled almost to overflowing. The first part of the program composed of musical and comedy selections was carried out with splendid success, and the entertainers were kept busy for some time responding to enthusiastic encores.

Over a score of boxes in the opera house were occupied by well known members of the trade and their families and guests. The charming ladies, wives and daughters of master plumbers added beauty and grace to the delightful occasion. Without them, how desolate and dreary the evening would have been.

To the committee in charge of the affair considerable credit is due. The members of this committee were: Isaac J. Brown, chairman; Harry Hemlin, secretary; Jere L. Murphy, treasurer, and B. F. Donohoe and Frank B. Lasette. The reception committee was composed of: President J. J. Hannegan, chairman; with other members —Wm. Young, T. J. Towney, David Deigan, Thos. C. McLaughlin, T. J. Cummins, Jas. P. Knight, Frank Fee and John R. Hopkins. The floor was in charge of Harry Hemlin, assisted by John C. O'Neill, George H. Creasy and others.

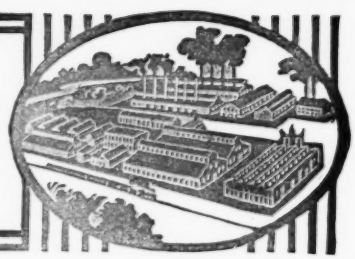
The grand march was led by Mr. and Mrs. John Hannegan, who glided gracefully forth, followed by over a hundred couples who tripped the light fantastic with charming precision. The scene was truly beautiful and delightful to witness. "It was magnificent!" That was the remark uttered by more than one guest after the conclusion of the evening festivities.

Among the notable guests of the occasion were: S. Louis Barnes, Philadelphia, national vice-president; National Treasurer William McCoach; Past National Secretary George F. Uber; Edward F. Roberts, president of the Philadelphia Association; D. F. Durkin, jr., president of the Pennsylvania State Association; Harry B. Lentz, George Moeller, Robert H. Pflug-Felder, all of Philadelphia; James Robertson, of Montreal; Past National Secretary T. S. Cochrane, New York City; Past National Director R. T. Rock, Bridgeport, Conn.: Denis Donovan, T. E. O'Brien and J. W. Sands, Brooklyn; William Flynn and Joseph Theiss, of the Bronx.

ANNUAL MEETING OF THE BRONX MASTER PLUMBERS.

The Bronx Branch of the New York City Association of Master Plumbers held its annual meeting on Wednesday evening, December 17th, in the rooms of the association at 1931 Washington Avenue, New York City. The meeting was well-attended and the election of officers resulted as follows: President, John J. Foley; vice-president, Frederick Smallstitck; secretary, David Durie, 246 Echo Place; treasurer, Stephen H. Welch; financial secretary, T. F. J. Moffett; sergeant-at-arms, Matthew J. Kennedy; marshal, Ossian Johnson. Delegates to the New York City Association: Wm. J. Flynn, Frank Habeck, Stephen H. Welch and Joseph Theiss. Trustees: Peter Schweickert, D. L. Delaney, Wm. J. Flynn, Joseph Theiss and Frederick Weber. The association is in a fine condition.

Among the Wholesalers and Manufacturers



KOHLER CO'S. CHICAGO OFFICE MOVED.

Kohler Co., of Kohler, Sheboygan, Wis., has moved its office in Chicago to the McCormick Building. The change took place January 1st.

WILL DEAL IN PLUMBING SPECIALTIES.

The Paradise Co., of Louisville, Ky., has been incorporated with a capital of $6,500. The incorporators are: J. B. Matthews, who is the principal stockholder; P. Stanhope and Harry H. Stanhope.

WILL MAKE GREENHOUSE HEATING BOILERS.

The Anti-Frost Stove Co., of Cincinnati, O., has been incorporated with a capital of $25,000 to manufacture greenhouse heating boilers. The incorporators are: Charles Meagan, H. J. Heinkler, C. A. Heinkler, W. E. Mayer and E. J. Reiss.

COMPLETE NEW LARGE WAREHOUSE.

The J. D. Johnson Co., successors to Ronalds & Johnson, of Camden, N. J., has just completed the erection of a solid concrete warehouse, 180 x 95 feet, at Seventh Street and Newton Avenue, in that city. The manager of the company's branch at this point is H. Lewis Goerlick.

FIRE CAUSES LITTLE INTERRUPTION IN LAIB CO'S. BUSINESS.

The fire which practically destroyed the buildings and stock of the Laib Co., well-known jobbers of plumbing and heating supplies, at Louisville, Ky., last week, has had astonishingly little effect on the company's ability to handle its business, considering the completeness of the work of the blaze. The temporary offices which were promptly established in a vacant building across the street are completely equipped and filled with the same busy force which formerly worked on the second floor of the gutted building. Many of the files were saved, and the ledgers and credit records were preserved intact in a large safe. A warehouse and storeroom on Bullitt Street, just around the corner from the company's buildings, have been secured, and shipments are being sent out on time, both to the city trade and elsewhere. A quick adjustment of the insurance is expected, as the underwriters are busily engaged in getting out the remaining goods, all of which were damaged, and it is expected that there will be little difficulty in arriving at a settlement. All members of the plumbing and heating supply trades in this section have assured George H. Laib and Philip Laib of their aid and support in "coming back" after the disaster, and with new stocks rapidly gathered together from local and other sources, and the two energetic members of the company bending their powers to the work, aided by their force, it may well be said that the come back has already been accomplished, at least as far as the firm's customers are concerned.

CHANGES IN THE SALES FORCE OF THE H. MUELLER MFG. CO.

With the beginning of the New Year a number of changes took place in the sales force of the H. Mueller Mfg. Co., of Decatur, Ill. E. S. Stebbins, who has been traveling in Nebraska, has retired from the services of the company and was succeeded by Harry Eggleston who was formerly with the United States Radiator Corporation. Horace F. Clark has also retired from the services of the company and was succeeded by L. M. Ross in the state of Iowa. E. G. Ince, who has been in the Minnesota territory, has also left the company and will be succeeded by E. F. Kennedy, formerly with the Standard Mfg. Co., of Pittsburgh. D. J. Mueller will be succeeded in Texas by C. H. Dubois who has had the Illinois territory, and R. L. Moore, who is a Mueller product, will travel in Illinois. He has already made several trips and shows up well. He was for many years shipping clerk and is well acquainted with the company's goods. Mr. Dubois has made one trip in Texas since leaving the Illinois territory. The new men have been at the Mueller Factory for several weeks getting acquainted with the goods and the company's methods of doing business. They are all experienced salesmen. The annual school of instruction for all Mueller salesmen began Monday, December 29th and ends with the banquet of the "49 Club" tonight, the evening of January 3d. All the Mueller salesmen reached Decatur for this event on Sunday, December 28th.

NEW MEMBERS OF THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.

Secretary Edwin A. Scott, of the American Society of Heating and Ventilating Engineers, has just announced that on a ballot of candidates for membership in the Society, canvassed on December 19th, the following have been elected:

Members:

Harold L. Alt, 221 Avenue M, Brooklyn, N. Y.

Winfield C. Bailey, 1 Belmont Street, Montreal, Que.

James A. Bendure, 157 Hodge Avenue, Buffalo, N. Y.

Willis H. Carrier, 490 Broadway, Buffalo, N. Y.

John D. Cassell, 2242 Land Title Bldg., Philadelphia, Pa.

Richard Dawson, 77 York Street, Toronto, Ont.

Frederick Reid Heath, 101 Park Avenue, New York City.

Gordon Don Harris, 189 Hudson Boulevard, Bayonne, N. J.

Marcel Herman, 16 Place Hauwaert, Brussels, Belgium.

Sophus Irgens, Chicago, Ill.

Robert Eugene Keyes, 13 Park Row, New York City.

J. Clifford Lewis, Hume Mansure Bldg., Indianapolis, Ind.

Byron Riggs Lewis, 705 Merchants Bank Bldg., Detroit, Mich.

E. C. Lillie, Canton, O.

Arthur Des Marchais, 220 7th Avenue, E., Calgary, Alta.

Frederick L. Prayor, Stevens Institute, Hoboken, N. J.

Frank G. Phegley, Rose Bldg., Cleveland, O.

J. M. Robb, 1513 Columbus Terrace, Peoria, Ill.

M. J. Sage, 4750 15th Avenue, Brooklyn, N. Y.

Newton L. Schloss, Ballinger & Perrott, Land Title Bldg., Philadelphia, Pa.

Richard L. Smallwood, 409 Lumsden Bldg., Toronto, Ont.

Lawrence R. Stetson, Montreal, Que.

J. F. Tuttle, 1510 Monadnock Block, Chicago, Ill.

William Franklin Verner, 908 Lincoln Avenue, Ann Arbor, Mich.

Associate Members:

W. L. Miller, 86 South Water Street, Newburgh, N. Y.

Budd Kinnan Strader, 165 Broadway, New York City

Junior Members:

Richard S. Bull, Hartford, Conn.

Charles C. Cheyney, 562 West Washington Boulevard, Chicago, Ill.

Benedict Goldrever, 234 State Street, Ottawa, Ont.

Ralph L. Nelson, Moline, Ill.

THE PEERLESS SELLING CO'S. SALESMEN'S ANNUAL CONVENTION.

The Peerless Selling Co., of Evansville, Ind., held its annual Salesmen's Convention in that city on December 15th to 19th. All the salesmen of the company were in attendance, and among the guests present were: James Greggs, or Tacoma, Wash; W. C. Atkins and A. C. Wallace, both of Denver Colo. Monday, December 15th, was devoted to a general reception of the salesmen, renewal of old acquaintances and an inspection of the company's factories. In the evening an elaborate dinner was enjoyed at the Vendome Hotel in Evansville. On Tuesday the salesmen and department managers held an all-day convention discussing sales systems for the new year. Wednesday was devoted to general discussions of policies and the company's new products. Thursday was spent in listening to addresses on and explanations of the company's products, the speakers and their subjects being as follows: B. M. Mitchell on "White Seats;" G. W. Jourdan on "Tank and Seat Trimmings;" J. D. McKay, "Noiseless Closets;" C. G. Perkins, "Automatic Compression Iron Tank Closets;" W. C. Irons, "Reverse Trap Bowls;" H. F. Weaver, "New Force Action Bowl and Earthenware;" W. A. Henn, "Peerlessometer," and Harry Snow spoke on "Rear Raised Vent Bowls." On Friday the different salesmen reported on trade conditions in their territories. During the demonstration of the company's new lavatories the accompanying photograph was taken. In the front row reading from left to right are: W. C. Atkins, J. D. McKay, H. F. Weaver, Mr. Bickel, Harry Snow, Katie Casey, A. C. Wallace, sales-manager of the Hedges-Atkins-McGee Co., of Denver; W. C. Irons, C. G. Perkins, W. A. Henn. Standing in the back row are from left to right: R. P. Smith, R. H. Smallmack, G. W. Jourdan, Mr. Henn, I. H. Harper, Mr. Mayer, B. M. Mitchell and O. C. L. Mann.

A CLEARING OUTLOOK.

An unusual series of favorable developments has lately occurred which should materially stimulate business recovery. Uncertainty about the tariff is ended, and nothing remains but adjustment to its requirements. Uncertainty about the currency is practically over, and the new bill, in spite of its defects, will, it is hoped, prove to be the most beneficial piece of legislation since the defeat of silverism in 1896. Uncertainty about the trust problem is also disappearing, mainly because there will be little ground for further agitation if the conciliatory spirit between the government and the trusts, as exhibited in the telephone controvery, is continued. Finally, uncertainty about the rail rate question appears to be fading away, for the reason that rational public opinion is insisting upon simple justice to the railroads, says "The New York Journal of Commerce."

Here are four of the biggest problems of the day, either

The Peerless Selling Co.'s Salesmen in Convention at the Plant in Evansville, Ind.

settled or being settled. They are problems which have harassed the business community for years, and a strong sense of relief must follow this warning of a long and dangerous conflict between government and business. For this welcome change President Wilson is fairly entitled to first credit, since without his patient and intelligent leadership this would not have been possible.

Business conditions, generally speaking, are sound. Liquidation has been severe and contraction extreme. Merchandise shelves are relatively bare, while some industries are literally starved, and there is no overproduction of importance anywhere, but many big vacancies to fill. Credit as a rule is sound, aside from international monetary difficulties, which are righting themselves; and there has been for months past little to interfere with resumption of ordinary activities, except a sort of creeping paralysis induced by fear of the uncertainties referred to above. These uncertainties may have been exaggerated in the minds of many, but they neverthless seriously impaired business initiative. The way is now being cleared for President Wilson's desire to "build up business on sound lines"—a desire that will demand time, patience and sensible optimism for its accomplishment. Happily the year ended with a much brighter outlook than it began.

Frank Merwin, president of the Cooper Sanitary Mfg. Co., of Philadelphia, Pa., is eastward bound after a five months' business trip to the Pacific Coast.

Bright Sage has just been appointed general manager of the Bremen Manufacturing Co., of Bremen, O., manufacturers of Caloric pumping engines for country and suburban homes.

L. E. Collins, formerly with Yeomans Bros., of Chicago, is now associated with the Western Pump & Engineering Co., Railway Exchange Bldg., Chicago. He will specialize on house and bilge pumps in his new position.

W. B. Dale, vice-president and sales-manager of the Street & Kent Mfg. Co., of Chicago, has the sympathy of his many friends in the trade on account of the death of his sister, which occurred in Chicago on Monday, December 29th.

Walter Apple, son of Herman Apple, of Brohl & Apple, Sandusky, O., has connected himself with the selling force of the Kennedy Co., Cleveland, O., and will, on January 4th, start into the field east of Cleveland and cover territory as far east as Jamestown, N. Y.

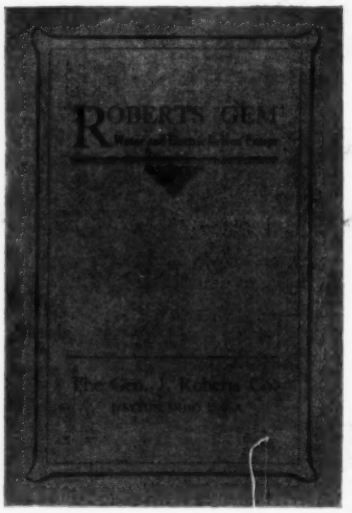
R. F. Kelly and J. J. Herbert, salesmanager and secretary, respectively, of the L-B-Brass Co., of Peabody, Mass., have been making a business trip in the interests of "L-B" ball cocks, visiting the principal eastern cities. They favored the New York office of "Domestic Engineering" with a visit on Monday of last week.

Lloyd W. Young has been appointed advertising manager for the Bishop-Babcock-Becker Co., of Cleveland, O., succeeding Richard C. Crisp, resigned. Mr. Young has been advertising manager for the Billings-Chapin Co. for the last three years, and prior to that he was sales-manager for the Gorry Iron & Steel Co., both of Cleveland, O.

C. C. Johnston, for the past two years branch manager of the Pittsburgh branch of the United States Radiator Corporation, has resigned his position from January 1, 1914. Mr. Johnston has been identified with the heating business for about twenty years and has made a host of friends in the trade who will learn with regret of his leaving the United States Radiator Corporation. Mr. Johnston was for many years one of the leading salesmen of the Herendeen Mfg. Co., of Geneva, N. Y., and in recognition of his achievements as a salesman was made manager of the Pittsburgh branch office when the United States Radiator Corporation was formed.

ROBERTS "GEM" WATER AND ELECTRIC DRIVEN PUMPS.

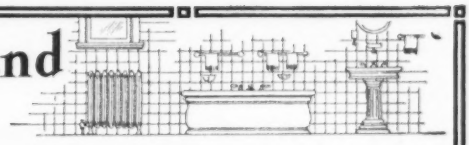
The accompanying illustration shows the front cover design of a catalog just issued by the Geo. J. Roberts Co., of Dayton, O., illustrating and describing in detail the Roberts "Gem" water and electric driven pumps for water supply systems for country homes, rural residences and public buildings as well as for large city buildings, where a large amount of water is used. The electric belt driven pumps are constructed to do automatic pumping for either direct pressure or open tank systems with a capacity from 180 to 360 gallons per hour, and the electric direct driven pumps are made in nine sizes, which discharge respectively from 3 to 30 gallons per minute. The water driven lifts are made in all sizes for domestic use, the water motor having the same size induction ports as the city water inlet, which prevents clogging up, and the suction screen furnished with every motor prevents dirt going to the pump from the cistern. Master plumbers interested in pumping outfits of this description can obtain a copy of this catalog from the manufacturer upon application, mentioning "Domestic Engineering."



VAN EXPANSION BOLT MFG. CO'S. NEW CATALOG.

The Van Expansion Bolt Mfg. Co., of Fort Dearborn Bldg., Chicago, has just issued a 24-page catalog illustrating and describing the "Van specialties, including expansion bolts, drillhammers, drills and the "Van" extension, the latter designed for use in connection with hollow walls, partitions, etc., where the weakness of the surface material requires a greater depth of hole. The catalog contains a large amount of valuable information about old and modern expansion bolts and their uses, and it can be obtained from the above-mentioned company upon application mentioning "Domestic Engineering."

Among the Plumbing and Heating Contractors



Illinois

Chicago.

The health department of the city is preparing to wage a drastic warfare against the evils of ventilation in buildings containing places of assemblage of any and every kind, after the first of the year. The success which has attended the department's efforts during the past year, have spurred the officials on to renewed effort in this respect for 1914. Dr. Young, Commissioner of Health, announces that the street car companies will have to "get busy" respecting ventilation in street cars. "If the railway company devoted one-tenth as much time to disciplining the conductors for failure to keep fans going as it does about collecting nickels, this ventilation trouble in the cars would be largely eliminated," said the commissioner recently.

G. H. Schley, 5536 South Ashland Avenue, has recently secured the contract for installing the heating system in a residence to be built at 6240 South Maplewood Avenue.

Gallagher & Speck, heating contractors, 215 West Congress Street, have been awarded the contract for installing the heating system in a clothing factory at 1708-18 Winnebago Avenue.

Charles Romsey, 5143 North Clark Street, will install the heating plant in a 12-flat apartment building to be erected at 5300-04 Glenwood Avenue.

The Taylor Furnace Co., of 75th Street and South Chicago Avenue, has obtained the contract for installing the heating system in a residence to be built at 7925 Constance Avenue.

The P. Nacey, Co., of 927 South State Street, will do the plumbing work on a large store to be built at 5260 Indiana Avenue.

Jones & Jacobi, of 145 South Fifth Avenue, will install the plumbing in a clothing factory to be built at 1708-18 Winnebago Avenue.

L. Christianson, of 2218 Tripp Avenue, has recently been given the contract for plumbing a cottage at 2250-52 North Kostner Avenue.

Robert Patrick, of 4356 Broadway, will install the plumbing system in a large apartment house to be erected at 7000-20 Rhodes Avenue.

A dyeing and cleaning house to be built at 3251-53 Fullerton Avenue will be supplied with up-to-date plumbing by Kiessling Bros., of 2320 North Avenue.

Two bungalows to be constructed at 7314-20 Rhodes Avenue, will be equipped with plumbing by J. Dooley, of 814 West 54th Place.

Ed Steinberg, 1744 Foster Avenue, has recently been awarded the contract for installing the plumbing in a two-flat building to be erected at 6540 Greenview Avenue.

Kehm Bros. Co., of 13 West Kinzie Street, has been awarded the contract for installing a steam heating plant in the new depot at Mayfield, Ky., and will begin work at once. The company expects to have the job finished, with the rest of the building, in about six weeks.

Ohio

Columbus.—Employers of labor all over the state of Ohio are up in arms over the new employes compensation law, passed by the last session of the Ohio General Assembly which became effective January 1, 1914. There are many inconsistencies in the law and its enforcement is bound to work a hardship to many employers, among which are plumbers and steam fitters. A meeting of employers was held at Cleveland recently when steps were taken to secure radical amendments to the law at the coming extraordinary session of the Ohio legislature. Governor Cox, Attorney-General Hogan and other state officials recently held a conference to decide what steps should be taken in the campaign to secure amendments to the law.

Columbus.—Mayor Karb, of this city, will urge Governor Cox to give his support to an appropriation of $30,000 for the construction of a public comfort station on the state house grounds. It is the desire of city officials to see the comfort station erected during the coming year.

East Liverpool.—The health board will demand of the new council that they proceed without further delay with the improvement of the water supply of this city in compliance with the demand of the state board of health. The state board has ordered the improvement completed not later than January 1, 1915.

Fostoria.—State Engineer Dittoe of the state board of health has inspected the sewage disposal plant here and states that it must be cleaned and otherwise improved. It was thought that a new plant would have to be constructed, but this will not be avoided.

Canton.—The firm of Grant, Sarted & Merriam, of Cleveland, are the low bidders for the sewage disposal plant to be built in this city after the plans of R. Winthrop Pratt, of Cleveland. Their bid was $218,810, which is $28,000 less than the estimate.

Hyattville.—The Hocking Valley Railway Co. is making quite an improvement in the water supply plant at Hyattville, by the installation of a softening plant 25 feet in diameter and 60 feet high to cost $9,000.

Mt. Vernon.—The state board of health has notified the city that the proposed extension of the sewer system and the sewage disposal plant must be completed before April 1, 1914. Service Director Blinn states that he hopes to award the contract for its construction before that date.

Fremont.—A number of plumbers, of this city, have signed a petition recommending the appointment of Dora Held as city plumbing inspector under the new law.

Tiffin.—A communication has been received from the Ohio state plumbing inspector urging that the city council of this city make provisions for a city plumbing inspector.

Fostoria.—Mayor Ralston has asked the engineer of the Ohio state board of health to confer with him relative to the proposed improvement of the sewage disposal plant. The city sold $20,000 bonds for the repair of the plant.

Vermillion.—F. W. Wakefield, president of the local

board of health, has sent a communication to the Ohio state board of health calling attention to the discharge of sewage in open streams in this section of the state.

Columbus.—The plumbing firm of Rose & Cox, which has been located at 889 North High Street, has been moved into a larger and more modern quarters at 992 North High Street.

New Philadelphia.—The Lamneck Co., of Columbus, has been awarded the contract for the heating system for the New Philadelphia schools at about $10,000.

Westerville.—The state board of health has decided that this town must have a complete sewage treatment system constructed within the next three years.

Fremont.—At a recent meeting of the master plumbers, of this city, steps were taken to have the local plumbers affiliate with the Ohio State Master Plumbers' Association. Members of the Toledo organization were present to urge the affiliation of Fremont plumbers in organization work.

Pennsylvania

Pittsburg and Vicinity.

According to announcements made here during the last few days, specifications will soon be ready for bidders to figure on work in the construction of nearly 400 residences, which are to be built in this district, starting early in the spring.

The Brighton Club Co., of which H. T. Marsh, of this city, is the president will build between 300 and 350 houses in groups of 10 and 20 on the Northside. Specifications call for up-to-date plumbing and heating.

Thomas A. Watkins, of the Machesney Building, has plans prepared for the erection of 80 residences which will cost each between $4,500 and $6,000. Automatic heaters will be a feature of these houses, while tile baths and plumbing will be included in the specifications, which are ready for distribution. These two building campaigns are the largest planned in the residence line prepared in this district in many years. Both plumbing and heating contracts will be the biggest since the erection of the large office buildings of two years ago.

The Armstrong County Hospital, of Kittanning, Pa., which has just completed a campaign for its funds, will build an institution at a cost of between $75,000 and $100,000. The plumbing and specifications will be arranged for soon after the New Year.

At Johnstown, Pa., the Ft. Stanwix Hotel Co. is having plans drawn for the erection of a new hotel there at a probable cost of about $400,000. The contract for building has been awarded to the Thompson-Starrett Co., of Pittsburgh. The plumbing and heating specifications have been prepared, but no contracts have been let.

Plans for making alterations and additions to the Presbyterian Church, at Sewickley, Pa., which include plumbing and heating have been prepared by Architects Rutan & Russell, of the Magee Building, this city. The work will cost about $25,000. Steam heating will be featured.

Among the heating and plumbing contracts awarded in this district during the last few days have been the following:

Jay C. Tussey, of Hollidaysburg, Pa., was awarded the plumbing and heating work in the $10,000 residence being erected in Altoona, Pa., by W. Frank Vaughn, of Altoona.

Moss & Blakely will do the heating work in the $10,000 engine house being erected here by the City of Pittsburgh. The plumbing on this job will be done by the Buerkle Plumbing Co., of this city.

Elwood Bros. have been awarded the heating contract in the $40,000 parochial school being built in New Kensington by St. Joseph's R. C. Congregation.

Philadelphia, Pa.—Flynn & Love, of Sansom Street, have under way the plumbing and water supply installation on the large stock farm of Dr. Ashton on West Chester Pike. The work will aggregate $12,000. They also have under way a $15,000 contract in that of the plumbing and piping for the Class & Naschod Brewery, at Tenth Street and Montgomery Avenue.

Massachusetts

Wakefield.—William Schaffer has moved his plumbing business from Foster Street to larger quarters at 558 Main Street, Wakefield Junction. He will reside at that address, altering part of the estate to meet his requirements for a plumbing shop.

Chicopee.—John J. Enright has assumed the position of manager of his father's plumbing establishment in Church Street made vacant by the resignation of William C. O'Neil.

Northampton.—Ernest Frary, master plumber of this city, and his wife recently celebrated their twenty-fifth wedding anniversary at their home in South Deerfield. Mr. Frary is well known in the trade both here and in Holyoke.

Vermont

Jed B. Safford, who recently sold his interest in the St. Albans Plumbing and Heating Co., of St. Albans, Vt., of which he was manager, has been made treasurer and general manager of the St. Albans Foundry and Implement Co., of that city.

Hardwick.—Sam Daniels, proprietor of a prosperous plumbing and hardware business in this city, will soon enlarge his establishment. He has purchased a block on Riverside Terrace, commonly known as "the old tannery" and proposes to remodel one of the stores in the building for his plumbing business. The block also contains five tenements which Mr. Daniels proposes to put in first-class shape for renting.

Connecticut

Fred W. Gerrick, of Willimantic, has been awarded the contract for a new heating system for the North Windham grammar school, at North Windham, Conn.

The park commission of Providence, R. I., is working on plans for comfort stations at the Tockwotton, Garibaldi and Hopkins Park playgrounds and it is expected that the buildings will be ready when the grounds are opened in the spring. The commissioners plan to spend about $12,000 in the work.

Washington

Seattle.

Local plumbing and heating contractors are experiencing the usual lull which follows the Holidays, yet the depression is less pronounced than that of former years. In fact, the majority assert that business is far better than could be expected. Business during the month of November and December has been much better during the two months preceding and from the present outlook activities will continue for some time to come. The month of January and the succeeding months hold alluring promises to the large established firms, owing to the fact that much new construction in the shape of substantial business structures and pretentious residences will begin at this time. Many local architects attest to the authenticity of this statement, as they have plans on their boards which will be completed and upon which figures will be taken after January 1st.

Seattle business men as a whole predict a prosperous and busy year during 1914. Contractors and investors give as their opinion the statement that the city will boom during the coming year.

The largest contract recently awarded in this city was let to the Rautman Plumbing & Heating Co. 617 Fourth Avenue. This was for the installation of both plumbing and heating in the Ford Motor Car Co's. assembling plant located at 1151-1169 East Valley Street. Approximately 100 plumbing fixtures will be installed besides the heating system.

J. S. Graham is having plans prepared for a large business block, to be used for stores, to be built on Pine Street, between First and Second Avenues. Figures for the general contract, and for plumbing, heating, electrical wiring, etc., will be received early in January.

A. E. Greenus, 1412 First Avenue, will erect a three-story building which will be occupied by the Locomobile Co., on Summit Avenue and East Pike Street. Plans for the structure are being prepared and bids for construction will be received early in January.

The Pacific Telegraph & Telephone Co., of 1115 Fourth Avenue, recently awarded the contract for alterations to the old Independent Telephone Exchange building to The Sound Construction Co., Lowman Building. The work entails the expenditure of about $10,000. Plumbing, heating and electric wiring are included in the general contract. The general contractors will receive bids for sub-contracts in the immediate future.

The Commandant, Fort Worden, Washington, will receive bids this week, for the construction of an addition to the bakery buildings at the Post. Plumbing and electric wiring bids will be included in the general contract.

The Ernst Hardware & Plumbing Co., of 514 Pike Street, has signed up more contracts during the past two weeks than any other firm in the city. The Ernst company does a large amount of residence work and a number of the contracts below enumerated are for plumbing in residences. The latest plumbing contracts secured by this firm follows: N. Nelson, 4602 Myrtle Street; O. H. Sundt, 4910 Burke Avenue; J. H. Johnson, 2426 Ninth Avenue, West; Cook & Ward, 2321 Franklin Avenue; S. E. Chesney, 1417 Belmont Avenue; Waldorf Hotel, 700-712 Pike Street; W. F. Flagg, 6052 Thirty-first Avenue, Northeast; R. N. Gibson, 4756 Fourth Avenue, Northeast, and 4731 Fifth Avenue, Northeast; St. Alphonso's Catholic Church, 5704 Fifteenth Avenue, Northwest; J. H. Starbird, 315-325 West Galer Street; U. S. Eikenberry, 7307 View Drive, and for W. C. Hubbard, 104 North Thirty-ninth Street.

The Olympic-Portland Cement Co., White Building, Seattle, recently awarded the contract for building twelve modern bungalows at the rock quarries in the Columbia Valley, near Kendall, Wash., to W. A. Bradford, Bellingham. The contract for plumbing has been awarded to Christopher & Blythe, Bellingham.

Michigan

Detroit.

Architects Stahl, Kinsey & Chapman are taking figures on the plumbing and heating on a block of five brick stores and flats, 45x120 feet, to be erected at Jefferson Avenue and Rivard Boulevard, Grosse Point. This firm is also preparing the plans for a veneer residence to be erected in the North Woodward district.

Achitect G. V. Pottle is revising the plans for a brick and tile residence to be erected on Ferry Avenue, east of John R Street.

Architects Pollmar & Ropes are taking figures on a brick store and three-family flat building to be erected on Michigan Avenue to be 52x50x90.

Architects George H. Braun & Son are revising the plans for a double veneer store and flat building to be erected on the south side of Kercheval Avenue, near Fairview Avenue. This firm is also preparing plans for a six-family brick apartment building to be erected on Antoine Street, near Kirby Avenue. They will take figures after January 1st.

Master plumbers who are members of the Builders & Traders' Exchange are receiving a neatly engraved Christmas card which reads "Much pleasure may your Christmas bring; long life, good health and everything your heart could most desire."

Ernst Bros. will install the plumbing in the three-story building being erected at 193 Michigan Avenue.

Agree Bros. will install the plumbing in the dance hall at Division and Hastings Streets. The Ideal Furnace Co. will install the heating system.

Victor D'Hondt will install the heating and plumbing in the 14-house terrace and garage building at Jefferson and Seyburn Avenues.

William Adams is installing the plumbing and heating in the four-family brick apartment on Cadillac Avenue, north of Jefferson.

Max Hafke is installing the plumbing and heating in the two-family veneer apartment on East Grand Boulevard, north of Mack.

Burn Bros. are installing the plumbing in the two-family brick apartment and garage on Second Avenue, north of Palmer for D. H. Davis.

The Zerga Plumbing & Heating Co. is doing the heating in the one-story brick store building being erected on Elizabeth Street, near Woodward. The plumbing is being installed by the George H. Soffel Co.

Donald Miller & Co. are doing the plumbing and heating in the Grace Hospital addition at Willis and Brush Streets.

Thomas Bruckman & Co. have been awarded the heating contract on the building at Russell and Euclid Streets for the Koppitz-Melchers Brewing Co.

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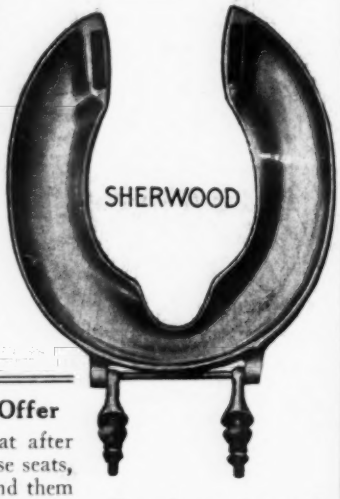

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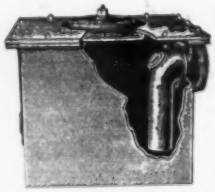

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The Murdock Mfg.&Supply Co.

Cincinnati, Ohio

Grand Rapids.

A. F. Vallette, Lake Drive and Robinson Road, has several good contracts at the Acme Welding Co's. plant and two hot water jobs in the suburbs.

The Neuman Plumbing & Heating Co. has been awarded the contract for plumbing and heating in a new school at Mecosta, Mich. The contract amounts to $2,500. This company also has the heating in Covell Hensen Printing Co's. new addition.

Otto Bettin is roughing-in the plumbing at the Grand Rapids Underwear Co's. plant.

Wm. Pratorius has the contract for plumbing and heating in the residence of Wm. Hatton at Grand Haven. He also has several small contracts for plumbing in Grand Rapids.

C. F. Neuman, 614 Ionia Street, is just completing the installation of a chemical lavatory and domestic science tables in the high school at Holland, Mich.

Muskegon.

Wm. H. Banninya, formerly with James Coyne, of 42 South Terrace, has opened a plumbing shop at 45 Emerald Street and judging from contracts on hand is doing a nice business.

Hunter Bros. report a good year. They have a number of jobs to complete by January 15th, and their jobbing business is getting brisk.

W. L. Tenny, Muskegon Heights, has opened a plumbing shop on McKinney Avenue, with an electrical department and will be pleased to receive catalogs. Mr. Tenny's wide acquaintance in that locality has enabled him to secure some nice contracts and he anticipates good business for next year.

Battle Creek.

Snyder & Schram state that 1913 was the best year in the history of their business. They have finished all of their large work, but have contracts for several residences on hand to be completed in January.

E. J. Dousett has been awarded the contract for plumbing in the three-story addition to Clifton Hotel.

Battle Creek's new City Building is now under roof and the plans and specifications for plumbing and heating will be ready within the next few days.

E. J. Galloup says he has enjoyed a very prosperous year and anticipates a good year for 1914.

Bert B. Stevens is just completing three nice contracts: Plumbing, heating and ventilating Masonic Temple and the 10th Grade School, and plumbing and heating the Nichols Memorial Hospital's new addition.

Benton Harbor.

Waters & Son have several heating contracts and small plumbing jobs on hand and do not expect to clean up the business on hand before about February 1st.

Myron W. Cobly, formerly with Frank Noble, has opened a plumbing business at 155 Pipestone Street, and has a number of nice contracts on hand. He is now completing the plumbing in Clyde Beebe's new $20,000 residence on Pipestone Street

J. H. Sutherland is installing a pneumatic water supply system at J. S. Munger's residence at Blue Creek, and he has to install another at Harry Versaw's residence at Hartman, Mich.

St. Joseph.

Adolph Riech, Ship Street, has just returned from a three weeks' hunting trip at Sidnaw, Mich. To converse with Mr. Riech would soon convince one that he is a woodsman as well as a master plumber, and the fact that he brought home two fine deer heads and a wolf pelt

more than proves it. Mr. Riech will start in the spring to erect a three-story building on the site where his shop now stands. The top floors to be used for dwelling purposes and the ground floor to be occupied by his plumbing shop and show rooms.

Kalamazoo.

Wheeler, Blaney Co. is doing the plumbing and heating in the Masonic Temple and in the new addition to the Post Tavern at Battle Creek.

The Citizens Plumbing & Heating Co. has the plumbing and heating contract for the A. U. V. Auditorium and expect to complete it early in January.

The firm of De Kam & Ream has been dissolved. Ben DeKam will continue the business at the old stand and Paul Ream has opened a shop at 1018 Oak Street. Already Mr. Ream has secured some very good contracts, among them being the plumbing in Baldwin's Sanitarium and the plumbing in two flats and seven dwellings.

The plumbing in the new Vincent Hotel was let to Ben J. DeKam, and H. J. Dunbar, Paw Paw, Mich., was the successful bidder on the heating. Mr. Dunbar also has the heating in Baldwin's Sanitarium.

Kentucky

Louisville and Vicinity.

The annual election of officers, held by the Louisville Master Plumbers' Association on Monday evening, December 15th, indicated not only a good deal of interest in the organization on the part of the members, but unqualified approval of the administration of the officers who have run things for them during the past year. George Schardein, head of F. S. Schardein & Sons, was re-elected president, after having served two terms successfully; "Jim" Petty, as J. S. Petty, is popularly known, succeeds himself as secretary; Phil. Miller was again elected treasurer, and the board of directors, consisting of David Welsh, Herman C. Degan and Jacob Isaacs, was retained intact. The only new officers are Clarence Nevin, who becomes vice-president, succeeding L. P. Spies, and W. R. Seestadt, sergeant-at-arms, succeeding Allen Ramsey. A buffet luncheon was a pleasant feature of the meeting.

The approaching convention of the National Building Trades and Employers' Association, which is to be held in Louisville on January 20 and 21, is exciting unusual interest among the members of the building trades in the Falls City, not only because it is in itself a noteworthy event, but because of the likelihood of some important developments in the matter of the uniform specifications movement, which had its birth in Louisville and which has since become a national matter. At the recent convention of the American Institute of Architects, held in New Orleans, December 2, 3 and 4, a committee of that body was appointed to confer with a similar committee, to be appointed by the National Association of Builders' Exchanges, for the purpose of getting together on the matter. While it is not probable that much progress will have been made by the time of the convention, the trades interested are none the less awaiting with interest such information on the subject as may be then available. The voluntary appointment of a committee by the national organization of architects, which is one of the strongest trade or professional bodies in the country, indicates an attitude on the part of the architects which is in striking contrast to that with which the profession at first greeted the suggestion that plans and specifications could gen-

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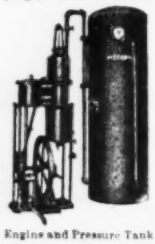
A Noiseless Pumping Engine with no complicated parts, batteries, spark plugs, valves or carburetor to get out of order.



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MODERN SPECIALTIES

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Bugs don't like this adjustable boiler stand. It gives them no roosting place. To plumb boiler, insert wedge under slide piece. Why pay the same price for a stand of the ordinary kind? Height, 13¾ inches. Weighs about 6 lbs. Get jobber's price for lots of 100 or more.

C. H. FOSTER
14 Princeton Ave. ST. LOUIS, MO.

erally be a good deal improved; and there is little room to doubt that with the co-operation of the architects and the building trades, uniform specifications and contracts to cover practically all kinds of work will eventually be evolved to the great benefit of plumbing and heating contractors as well as everybody else interested.

Louisville members of the plumbing, heating and other building trades are considerably interested in the work which is to be taken up shortly by the Board of Education, looking toward the expenditure of a considerable portion of the proceeds of the million-dollar bond issue approved by the voters of the city for school purposes. A number of new buildings will be erected, the most important of which will be the new high school for boys, which will to a certain extent take the place of the two existing buildings used for that purpose. It is understood that the building will cost in the neighborhood of $350,000, although no details have yet been settled upon. Plans will be prepared as rapidly as possible, after the board has settled upon the size and number of the buildings to be erected, in order that, if possible, they may be ready for occupancy by the beginning of the next school year.

California

San Francisco and Vicinity.

The meeting of directors of the San Francisco Master Plumbers' Association on Monday evening, December 15th, was a rather perfunctory affair, as the old directors simply went through the formality of installing themselves for another term, and decided to continue with the same set of officers. The State Association work is receiving considerable attention at present, and a very interesting meeting was held recently in Oakland, at which President John Cahill and Secretary John L. E. Firmin were present. Mr. Cahill is at present engaged in association work in Stockton and San Joaquin valley towns. It has been practically decided that the next annual convention will be held some time around May 11, at Los Angeles; and the Los Angeles members have sent word that they are already starting preparations for the event. The Los Angeles people are known to be great entertainers, and there is no doubt that the delegates will have a great time. It is predicted, moreover, that that convention will be more interesting than usual in the discussion of trade questions. As for several years past, the matter of credit will probably be the most important question to come up, but there is reason to expect that the trade will approach much nearer to a final solution of it than before. General sentiment at present seems to favor something in the nature of the Milwaukee plan, the principal object desired being to make the debtor realize that he must pay, which would have a strong tendency to overcome the reckless competition which has been the bane of the trade in the past.

A new development in the changes in the John G. Sutton Co. has taken place this week, in the incorporation of the Scott Company, with a capital stock of $100,000, by W. P. Scott, H. M. Van Pelt and C. J. Doughty. Mr. Scott has been for some time vice-president and general manager of the John G. Sutton Co., of late practically taking Mr. Sutton's place in its affairs, while Mr. Van Pelt is head of the heating department, and Mr. Doughty of the plumbing.

Theodore Wetzel, jr., has taken a contract for plumbing in a fine residence in St. Francis Wood, a new tract in this city, at $1,013.

The Metal Market

A Better Outlook in Iron.

Several consumers along the Delaware River sent out inquiries for pipe iron, and a gas company in Brooklyn has practically purchased 5,500 tons of gas pipe of various sizes. In addition several other large gas pipe orders are developing. In the last week of the year very little business was transacted, most consumers preferring to wait until after the new year has started, many being frankly superstitious. It is evident that there is a good deal of inquiry which will come out in the next few days. Quotations are as follows:

No. 1 Northern Foundry, New York	$15.25 to $15.50
No. 2X Northern Foundry, New York	14.75 to 15.25
No. 2 Southern Foundry, Cincinnati	13.75 to 14.25
No. 2 Northern Foundry, Cincinnatti	15.25 to 15.75
No. 2 Southern Foundry, Birmingham	11.00 to 11.50

A Broad Market for Copper.

Consumers of copper in the United States purchased freely during the holidays and a very large tonnage of metal was disposed of at constantly advancing quotations. The buying movement started in with copper at around 14¼ cents, but the price was quickly lifted to 15 cents on a very fair volume of business. It is evident that stocks in Europe were much lower than had generally been supposed and it is more than possible that the present buying movement will go on for some time.

Lead.

The American Smelting & Refining Co. advanced its quotation for lead and found a very fair demand. Prices are now 10 cents per 100 lbs. higher than a week ago.

Spelter.

The market in spelter continues inactive with little or no new buying.

Pig Tin.

Prices continues to sag and sales have been made at around 36 cents. It is evident that stocks are accumulating in all parts of the world, and this of course has had its influence on the tin market.

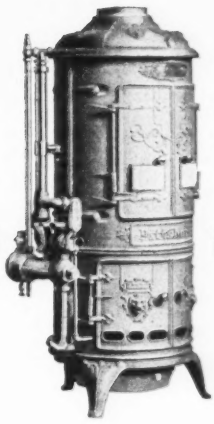
FINANCIAL TROUBLES.

Yonkers, N. Y.—Thomas J. Bell, a plumber in this city, has filed a petition in bankruptcy scheduling his liabilities at $3,300.

Hutchinson, Kans.—The Hutchinson Plumbing Co. has filed a voluntary petition in bankruptcy. Liabilities, $6,069.64; assets, $6,516.17.

Chattanooga, Tenn.—The Bork Plumbing Co., of 708 Cherry Street, has filed a petition in bankruptcy. Its liabilities are listed at $4,434.98 and its assets at $2,427.17.

San Luis Obispo, Cal.—W. A. Brouillet, a master plumber of this city, has filed a voluntary petition in bankruptcy, scheduling his liabilities at $1,818.39 and his assets at $5,259.09.



A Prosperous Year

and a substantial increase in business will be **assured** if you feature the "Pittsburg" automatic gas water heater.

It is an appliance that produces results you can figure in **dollars** and **cents;** and for which there exists a large and constantly growing demand. The

"Pittsburg"

is backed by a powerful sales plan that is national in its scope—a plan that produces live prospects; and every "Pittsburg" dealer is entitled to its benefits.

Resolve NOW to make the "Pittsburg" your "leader" in 1914. It will return generous profits to you.

Let us send you details.

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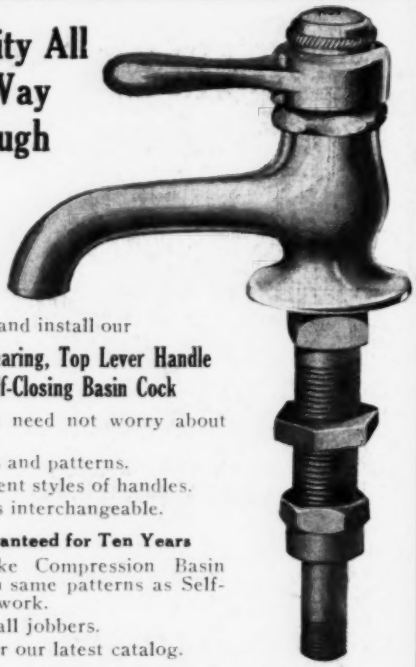
Quality All the Way Through



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14 different styles of handles.

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Reduces cost of installation.
Only expansion tank needed on Hot Water Systems.
Placed beside boiler—saves piping to attic.
Smaller pipes—2-in. mains, ½-in. and ¾-in. risers.
More heat—less fuel.
For old or new work. **Cures a sick job.**
Cheapest and best heat generator on the market.
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A trial order will convince you.
Write for complete description.

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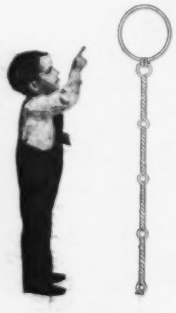


Dad Says,

if honesty's the best policy, there's piles of people without insurance; yet with his Pipe Hanger every risk is eliminated. Dad says it's equal to the best at less than half the price, and if you don't find it so you can return it and he'll pay the freight both ways.

If your jobber cannot supply you, write us.

D. A. DONOVAN
AUBURN, N. Y.

Obituary

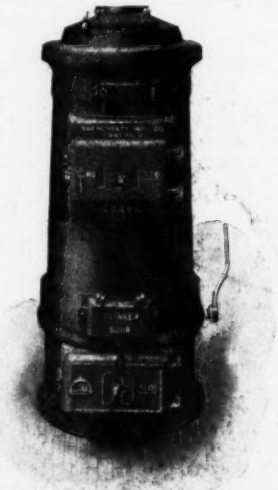
Adolph A. Wolf.

Adolph A. Wolf, one of the leading German-Americans of Manchester, N. H., and for many years associated with his father-in-law, Christian L. Wolf, in the plumbing business on South Main Street in that city, died suddenly at his home at 34 Second Street on December 20th. Death was due to a cerebral hemorrhage. Deceased was 46 years of age and had resided in Manchester 22 years. A widow, one daughter and two sons survive.

Joseph H. Sowden.

Joseph H. Sowden, who has been engaged in the plumbing and heating business at Vincennes, Ind., since 1897, died at his home in that city Sunday morning, December 28th, from injuries received in a fall in his bathtub several weeks ago. Mr. Sowden was born in Yorkshire, England, April 1, 1855, and came to this country with his parents in 1868. The first years were spent in Philadelphia, from where he went to Cleveland and later to Cincinnati. In 1897 he moved to Vincennes, Ind., and established a plumbing and heating business, which proved a success from the start. About a year ago he was appointed sewer inspector, being the first one to hold that office in Vincennes. He was a member of the Master Plumbers' Association and the Master Steam and Hot Water Fitters' Association.

Is Your Supply of Hot Water Sufficient? Are You Put to Any Inconvenience? Not If You Use the



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